

**MINUTES OF THE
AIAA STRUCTURAL DYNAMICS TECHNICAL COMMITTEE MEETING
Marshall Space Flight Center, Huntsville, AL
20 October 1999**

INTRODUCTION.

The Fall '99 meeting of the Structural Dynamics Technical Committee (SDTC) was held on 20 October, 1999 at Marshall Space Flight Center in Huntsville, Alabama.

Our host, John Lassiter, arranged a tour of various research and test facilities in the morning.

1. CALL TO ORDER.

Mark Hopkins, Chairman, called the SDTC meeting to order at approximately 12:00 hours. Introductions were made, including first time attendees Ken Alvin (Sandia National Labs) and Ted Nye (TRW) as well as visitors Bruce Willis (Boeing) and Eric Flint (CSA Engineering). Mark announced his resignation as chairman of the committee and sited the need for an election.

MINUTES OF LAST MEETING.

Mr. Wen-Liu Miao moved to accept the minutes of the SDTC meeting on 13 April 1999 without changes. Mr. Mike Tinker seconded. Committee voted to accept to the minutes by acclamation.

2. NEW BUSINESS

ELECTIONS FOR CHAIRMAN

The candidates for chair and vice chair were Mr. Ralph Tate and Mr. Mike Tinker. Mr. Don Edberg made a motion to vote and Mr. Ralph Tate seconded. Voting was executed by ballot. The resulting tally was 17 votes for Ralph and 6 votes for Mike. Therefore the new chair is Mr. Ralph Tate and the new vice chair is Mr. Mike Tinker.

3. OLD BUSINESS.

Mark Hopkins initiated a discussion on committee funds. These funds have been accumulated from short course proceeds and honoraria waived by instructors. Ralph Tate volunteered to contact AIAA to find out how much is in our "account" and how it can be accessed. Additionally, the TAC has budget for activities and projects which can be requested with a formal proposal. It was suggested that a working group be formed to handle fund requests.

4. SUBCOMMITTEE REPORTS.

AWARDS.

Pat Goggin has joined the ranks of the awards subcommittee.

EDUCATION.

Tom Zeiler will be the new subcommittee chair.

Outreach Video:

1. Ken Alvin suggested including video shorts on the web page if possible.
2. Don Edberg volunteered to write letters to request permission to use existing footage.
3. A dialog should be started with AIAA about disposition of profits, if any.
4. Mike Tinker says MSFC recently produced a CD on launch vehicles and space transportation. He will contact the production organization to see if they can help us.

Short Courses for 2000 SDM:

1. Aeroelasticity: State-of-the-Art Practices short course will probably be offered.
2. Paul Taylor is organizing "Introduction to Aircraft Design Loads" again. It usually has a good turnout.

PUBLICATIONS.

Don Edberg compiled the *Year in Review* article. He thanked all those who contributed information.

SECRETARIAT.

Sue Janssen has agreed to take on the duties of Secretariat. The roster and member database were circulated for corrections. Sue really appreciates any electronically submitted reports for inclusion in the minutes.

Hyong-Man Kim asked if AIAA sells the TC rosters. No one present knew, so Hyong Man volunteered to contact AIAA about the policy.

LIAISON.

John Lassiter summarized the subcommittee's activities and submitted the following written report.

Structures TC (from April meeting attended by John Lassiter)

1. Developed and advertised goals:
 - a) Become the focal point for development in aerospace structures
 - b) Develop innovative dissemination of information
 - c) Identify future research areas
2. Requires subcommittees to:
 - a) Have a two year term for subcommittee chair
 - b) Create a vision statement
 - c) Propose activities
 - d) Evaluate subcommittee, determine new direction or discontinue

Adaptive Structures TC (from April meeting attended by John Lassiter)

1. Discussed international activities. Voted to support ICAST.
2. Proposed participation in Congressional Day. Suggested TC develop a white paper to focus TC input to this activity.
3. Discussed other activities, one being participation in the 100th Anniversary of Powered Flight

Flight Test TC (report from Kirit Patel)

1. Discussed changing trends that can affect flight test and other disciplines. One being design with “cost as an independent variable”. This can reduce structural margins leaving no growth and adaptation to new threats.
2. Developing a white paper “Many Interesting Flight Test Projects at the USAF FTC”

From the April meeting report:

1. Adaptive Structures TC probably still taking applications. Their web site is <http://www.aiaa.org/tc/as/resources.html>
2. May be hearing about in the future if not already changes in the national TC structure.
3. Many TC are doing white papers to use in addressing some issue or to use in some activity.
4. Materials TC wanted to work with the SDTC on developing SDM sessions on dynamic material/structural response, strain rate dependent behavior, materials developed for vibration control. Status of this effort?
5. Anyone want to be the Liaison to the CAD/CAM TC, replacing John Maynor?

TC members are requested to consider volunteering for liaison activities if interested. See SDTC web page for more information.

TECH TRANSFER.

The SDTC web site has been moved to <http://www.aiaa.org/tc/sd/>. Dan Worth is the administrator. George Wacker solicited URLs of interest to be linked to our site.

CONFERENCES.

1. SDM 2000

Dr. Phil Beran ably represented the Structural Dynamics TC on the 2000 SDM Planning Committee. He was assisted by Dr. Andy Kurdila, who will also be the Structural Dynamics TC representative on the 2001 SDM Planning Committee.

Once again the Structural Dynamics TC has done an outstanding job in the review and organization process. This year's process was made harder by the fact that the abstracts were not given a tracking number by the Technical Chair, and Phil assigned his own numbers.

In addition, the time allotted for the review and organization process was reduced by almost 2 weeks compared to previous years, placing more of a demand on Phil.

Phil has provided a comprehensive report (Attachment 2) on the activities associated with the 2000 SDM and this is included.

A point that Phil would like to be emphasized is that selecting a session for a paper is made a lot easier if the reviewer provides a fairly accurate description of the session title in the review. The standard list of SDM sessions should be reviewed and updated accordingly. If possible, it is better to provide a more descriptive session title to aid conference attendees, however, sometimes this is not possible.

The conference facilities are evidently very nice, and the conference rooms are quite large, with a standard room holding about 90 people. Phil mentioned that hotel expense could be an issue, especially those who rely on government rates, so the suggestion is made to book as early as possible.

Phil has included a session layout, including session chair preliminary assignment. TC members should check Phil's report to see if they have been assigned to co-chair a session.

2. Dynamics Specialists Conference 2000

Mike Tinker and Kirk Dotson have put together a report on the DSC 2000 activities, which is included herein as Attachment 1.

Kirk made the comment that email response on scores was requested to maximise review time and this appeared to work quite well.

Kirk also made comments about the rejection rate and reasons for it, and finally on the call for papers process.

SDM 2000 Structural Dynamics Session Layout

#	Time	Title	Chairs	P1	P2	P3	P4	P5	P6	P7	P8	
J	Mon AM	Aeroelasticity I	Weisshaar/Beran	14	3	98	18	DSC 46	99			
B	Mon AM	Dynamics I	Agnes/Britt	38	59	36	47	63	42			
O	Mon AM	Design Analysis and Optimization	Venkayya/Zweber	1	34	40	66	84	MDO 20			
L	Mon PM	LCO	Huttsell/Cunningham	10	26	94	70	52	51			
E	Mon PM	Vibration Control	Moses/Henderson	73	29	65	4	48				
R	Mon PM	Structural Dynamics	Manter/Slater	13	45	53	74	95	78			
C	Tue AM	Computational Aeroelasticity	M.Smith/Love	56	88	60	25	9	79			
N	Tue AM	Modeling of Composite Response	Kudva/Brown	24	93	57	82	89	49			
Q	Tue AM	Unsteady Aerodynamics	Taylor/Tate	2	6	69	DSC 23	DSC 10				
M	Tue PM	LCO Panel	Strganac/Sanders	Special Panel Discussion								
I	Tue PM	Active Control	Kurdila/Yiu	DSC 33	72	91	58	76	33			
F	Tue PM	Dynamics II	Cesnik/Hsu	90	28	67	77	27	11			
K	Wed AM	Aeroelasticity II	Eastepp/Yurkovich	86	71	81	97	85	50			
A	Thu AM	Rotorcraft	Miao/E. Smith	37	DSC 32	96	75	15	DSC 4	DSC 30	23	
H	Thu AM	Experimental Dynamics and Test	Denegri/Hopkins	68	44	35	80	5	61	41	54	

3. SDM 2000 Student Paper Competition

Andy Kurdila headed the student paper competition effort and has written a memo which is enclosed as Attachment 3. A change in the organizational stance (allowing full-time researchers to serve as co-authors) has resulted in a significant increase in the number of participants. Andy pointed out that this change in the rules had little or no advertisement, and yet the results were still encouraging.

From the student papers submitted, two sessions were organized: “Dynamics, Control and Modeling” and “Composites, Fatigue and Modeling.”

Several problems remain with the student paper competition, several of which stem from the late abstract due date. Papers need to be reviewed through the general SDM review process and they should also be presented in regular SDM sessions. It was fortunate this year that all of the student papers fell into two neat categories.

4. SDM Long Range Planning

Dr. Shankar Mall of AFIT says the three sites being considered for SDM 2001 are Seattle, Portland and Monterey. The decision should be made by the end of this month. No word on chairs for the conference yet.

5. TC Representative for SDM 2002

The conferences sub-committee will require someone to act as the alternate SDM 2001 representative for the Structural Dynamics TC, to ultimately become the TC representative for the 2002 SDM. Please contact Paul Taylor, Pat Goggin, Phil Beran or Andy Kurdila.

6. Abstract Review Process

Hyoung-Man Kim, Pat Goggin and Paul Taylor have been working on a process to try to standardize the abstract review process. The overheads and process documentation have been forwarded by Hyoung-Man Kim and are given in Attachment 4.

Tips for SDTC SDM conference representatives have been compiled by Pat Goggin, Paul Taylor, and Phil Beran and included in Attachment 5.

Some concerns were expressed that the DSC spans four days and that attendance will be low, particularly on Thursday. Scheduling was complicated due to the restriction that papers cannot be presented while there are interactive plenary sessions.

Once again there was a lot of discussion concerning the distribution of proceedings on CD. The general opinion of the committee is that AIAA should be able to offer them at the conference, just like the hard-copy.

Information was requested on how many “no shows” are typical at the SDM. Paul Taylor offered to find out. The information he collected from the last two years is as follows:

Year	Location	# Papers	# No Shows	% No Shows	# Sessions
1998	Long Beach	384	23	6%	68
1999	St. Louis	336	34	10%	66

No shows include papers listed as withdrawn, i.e. they were on the final program but not presented.

Only one DSC paper was rejected. This low rejection rate is due primarily to the fact that most papers were solicited specifically for the DSC.

Further discussion on the quality of abstracts and the inconsistent review process. The committee felt the abstract guidelines should limit abstracts to be between 1000 and 1500 words (which would disallow submission of completed papers). Ralph Tate suggested we contact the Chair for the 2001 SDM and the Long Range Planning Committee and request this change.

6. ADJOURNMENT.

The next TC meeting will be at the SDM in Atlanta, on 4 April 2000. In addition to the SDTC meeting, the subcommittees may consider meeting at another time to work subcommittee business. Then report a summary at the SDTC meeting.

Sue Janssen motioned to adjourn the meeting. George Wacker seconded. SD TC meeting was adjourned by acclamation at 15:30 hours.

7. ATTENDANCE.

Members:

Dr. Kenneth Alvin
Dr. Donald Edberg
Dr. Yehia El-Aini
Dr. Mark Hopkins
Ms. Susan Janssen
Dr. Hyoung-Man Kim
Mr. John Lassiter
Mr. Wen-Liu Miao
Mr. Ted Nye
Dr. Kirit Patel
Mr. Ralph Tate
Mr. Paul Taylor
Dr. Michael Tinker
Mr. George Wacker

Associate Member:

Mr. Eric Flint (For Dr. Conor Johnson)

Visitor:

Mr. Bruce Willis

Notes:

1. The Chair strictly enforces the attendance rule. Committee participation is solely at the discretion of the committee Chair. If your name is not listed here, please confirm with Chair that your absence is excused.
2. The attendance reflects those who registered on the attendance roster their presence. The Secretary keeps the official attendance on a roster. It is your responsibility to register your attendance and confirm your bios.

Attachment 1 2000 DSC Report

Kirk Dotson

Conference Program

The DSC theme is "Structural Dynamics: Past, Present, and Future". Response to the *past* component was strong and is reflected in the keynote speech and several sessions dedicated to structural dynamics history. The *future* component of the theme is addressed in a panel session.

DSC will have 13 sessions (12 paper plus 1 panel). The program features structural dynamics history, computational structural dynamics, and emerging launch vehicle-space vehicle concepts. The subject matter of the DSC and SDM Dynamics programs does not overlap significantly for the year 2000. Recall that the Structural Dynamics TC desired a clear distinction between SDM Dynamics and DSC.

The year 2000 SDM runs from Monday morning through Thursday afternoon. The DSC sessions occur in three session blocks. Four DSC sessions are scheduled for both Wednesday and Thursday morning, while five take place on Thursday afternoon. (The Interactive Plenary Session occupies Wednesday afternoon.) The DSC is not alone on Thursday afternoon; SDM Structures and Materials, as well as all of the other forums, also have sessions in this block. So, plan on staying over Thursday night!

Abstract Summary

DSC received 82 abstracts. Eight of these were traded to SDM Dynamics; SDM Dynamics reciprocated with eight abstracts. Two DSC abstracts were sent to SDM Materials. The resulting net loss of two abstracts is unusual; past DSCs experienced a significant net gain after the completion of trades.

DSC used a 0-6 rating scale. The traditional abstract review form was updated. Reviewers were asked to respond using email, and provide only the abstract numbers and corresponding scores. The review forms were not returned; the email correspondence served as official documentation of the review. The intent was to maximize the time allowed for reviews, to accelerate the receipt of scores, and to obviate envelope stuffing. The approach worked well (at least, none of the reviewers complained) and may be worth continuing. Many thanks to all of the TC members who reviewed abstracts for DSC!

Trends in the 2000 DSC abstract scores are shown in Fig. 1. The data include those traded to and from SDM. Note that only six abstracts had a high score less than or equal to 3.

The range for abstracts at the bottom of the ranking was, therefore, generally large. It appears that there is little consensus about what constitutes a poor abstract.

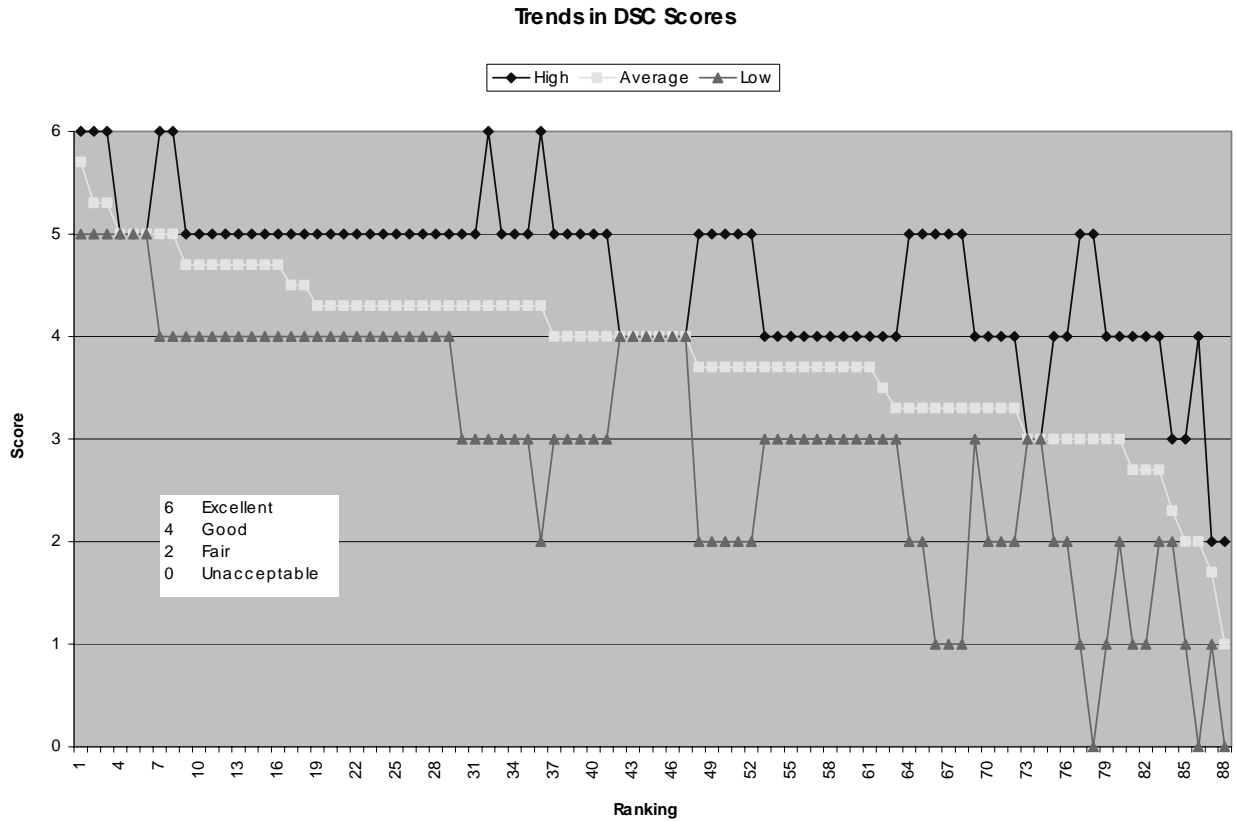


Figure 1. Trends in Abstract Review Scores

DSC accepted 78 abstracts and rejected one. (One abstract was withdrawn.) The rejection rate was low for several reasons: a) the DSC sessions are highly focused and abstracts from prominent individuals were directly solicited; b) several of the abstracts traded to SDM Dynamics and Materials would have been rejected by DSC because of low ratings or because they could not have been accommodated in the session layout; and c) only the single rejected abstract received truly low scores.

A histogram of the average abstract scores is shown in Fig. 2. Two papers with a 2.0 average were kept to achieve the 6 paper/session limit, but all other accepted abstracts were rated above 2.7.

DSC satisfied all of the deadlines established by AIAA and the SDM organizing committee. Informal notification letters were mailed to corresponding authors on 5 October to provide an early start for the preparation of manuscripts. Official notification by AIAA of acceptance is scheduled for 5 November. Final papers are due to AIAA on 1 February.

A stand-alone call for papers was developed for the 2000 DSC. It is estimated that over 600 copies were distributed at numerous AIAA conferences, symposia, and related forums. This aggressive advertising campaign, however, was not fruitful. The overwhelming majority of the abstracts received by DSC were sent in by individuals contacted directly by the general and technical chairs. It appears that a DSC, which is distinct from SDM Dynamics and composed of a sufficient number of sessions, cannot rely simply on responses to the conference call for papers. A preferred course of action is to identify session organizers willing to approach prospective writers.

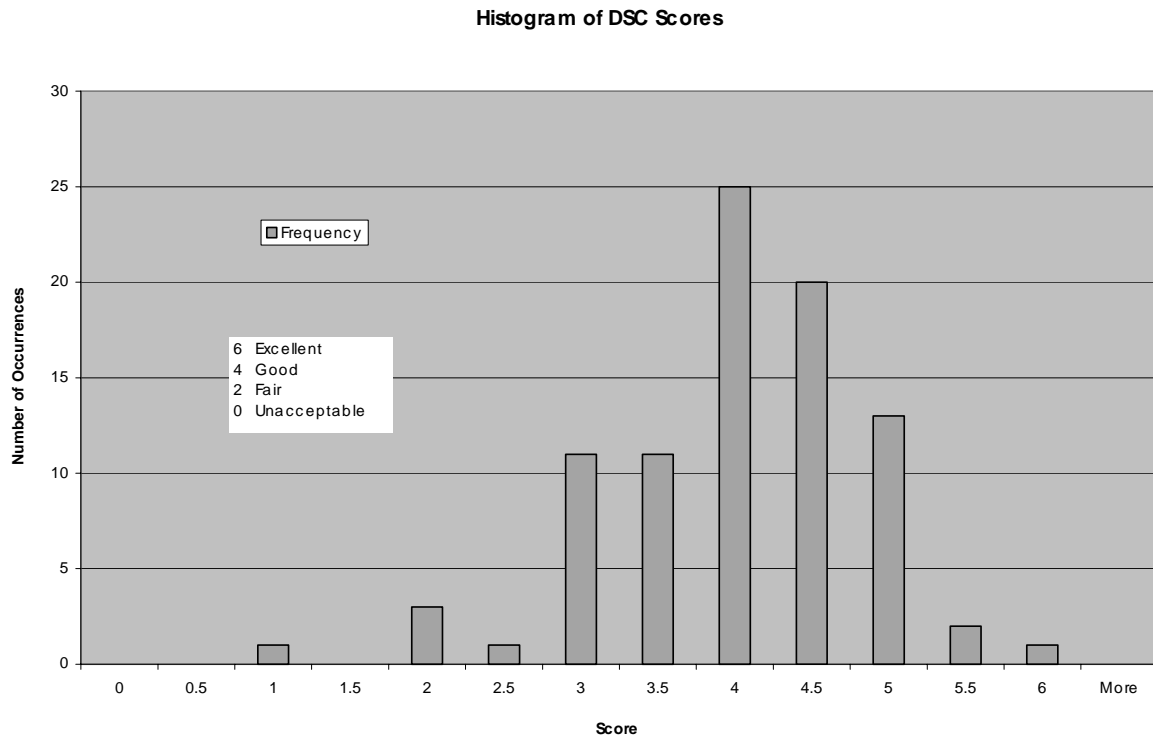


Figure 2. Histogram of Average Review Scores

Attachment 2
SDM 2000 Planning Committee
Structural Dynamics Report
(and Tips for Next Year)

Phil Beran

Attached with this overview report are

1. A session layout (sdm2000Session.doc) showing the dynamics sessions, session chairs, session breakouts, including paper tracking numbers, and data concerning the disposition of various abstracts.
2. A list of abstracts (DYN_Beran_paperlist_V2h.xls) referenced by a committee-assigned tracking number, and first author's last name. Also included in this list were abstract topics, used in session construction, and reviewer scores.
3. A sample abstract review sheet (rating.doc).
4. A "living" tutorial (Accumulated Tips.doc) on SDM planning from a Dynamics perspective, authored by Paul Taylor (and predecessors), and slightly revised by myself to include relevant dates. Tips I have for the next Dynamics Rep. (Andy Kurdila) are also added.

Session Organization

Each abstract received by Dynamics was assigned a unique tracking number, DYN#. A total of 101 abstracts were received, including two very late abstracts, and two abstracts (DYN98 and DYN99) initially received by the Materials TC and forwarded to Dynamics. Of the accepted abstracts, other trades occurred between Dynamics and Structures, MDO and the DSC. From a Dynamics standpoint, we broke even, and I think all TCs benefited from the trading activity. As an example, Dynamics sent the majority of space-station related papers to the DSC, where a good, single space-station session was built, while DSC sent Dynamics their rotorcraft papers, so that a single rotorcraft session could be built in the SDM. These trades were facilitated by good communications between the various representatives. Of the abstracts received, a total of 13 papers were rejected (a 13% rejection rate). As a measure of quality, a higher percentage of papers (87%) were accepted compared to SDM 1999 (83%), essentially a result of a reduced cut-off score (1.0833 vs. 1.17). It should be noted, that of the 13 rejected abstracts, 2 were rejected based solely on date received (2 days before planning meeting) without review. Also, two abstracts rejected based on review scores were given to the Work-In-Progress representative (Tony Palazotto), but their disposition is unknown. Rejection rates for other TCs are not included herein, but our rate was probably larger than the SDM/DSC average.

With the relatively low abstract count this year (compared to 151 for SDM 1999), a higher percentage of abstracts were accepted to help build reasonable sessions. A total of

15 sessions were constructed, including a special session, a panel session on limit-cycle oscillation championed by T. Strganac. A relatively large number of fluid/structure interaction type abstracts were received. The small number of special sessions reflected discouragement from various quarters for this kind of activity. Several factors for the low abstract count have been proposed, including

- The presence of the DSC this year.
- The lack of special sessions
- Conference site (expense)

DSC combined with SDM/Dynamics represented 28 sessions, somewhat lower than 30 for SDM 1996 (ref. Mike Tinker). Although not the goal, a reduced number of sessions and a full-day format on Thursday allowed for little overlap (3 sessions) between Dynamics and DSC. Also, no more than 3 concurrent Dynamics sessions were planned for any given time slot. Firdaus Udawadia, Technical Chairman, did an excellent job in room assignment. Dynamics sessions were limited to a total of 3 different rooms.

Abstract Reviews

Abstracts each received 3 separate reviews, except for 3 that only received 2 reviews, owing to time constraints. These were accepted, based on the accumulated score and the target cutoff value. The reviews were based on a 0 to 3 score system, which this TC has used previously. The cutoff was just above 1. In addition to the raw scores, suggested sessions for abstracts were of great value. With about 100 abstracts, approximately 300 reviews were completed. More than 80% of the reviews were carried out by SDTC volunteers that were solicited via e-mail. I very much appreciate all the help that I received in this area, and would like to give special thanks to Ralph Tate for reviewing over 50 abstracts! An example review form is attached.

Relevant Dates

Oct. 5 – Program submitted to AIAA

Nov. 5 – Letters of Acceptance go out

Jan. 2000 – Program appears

Feb. 12 – Papers due

Tips

Please see included documents.

SDM Review Form

DYN

Paper ID Number:

Author's Name:

Work Phone:

Paper Title:

Reviewer Name: _____

1. Paper Rating

Category	Rating	Excel- lent		Good		Fair	Unaccept- able	Rating
Technical Content		10	8	6	4	2	0	
Originality		5	4	3	2	1	0	
Completeness		5	4	3	2	1	0	
Total Rating								

Final Rating: _____ x 0.15 =
 (Total Rating)

2. Proposed Session

Choice 1: _____

Choice 2: _____

Choice (if not listed): _____

3. Comments

Provide a brief explanation of your rating, particularly if you propose to reject the paper (e.g. if the final rating is lower than 1.5). Also, if you think that the paper would be better suited for a work-in-progress or the technology exhibit, please indicate so in your comments.

42nd SDM Abstract Review Guidelines (Draft)

The organizing committee for the 42nd SDM thanks you for the time and effort expended in evaluating abstracts. The decision to accept or reject a paper depends, to a large extent, on the ratings of the reviews. This review will be used only by the organizing committee in establishing the conference program. Your name, rating, and comments will not be revealed to the author(s).

The following are guidelines for reviewing abstracts. For your reference, excerpts from the 42nd SDM "Call for Papers" are enclosed. More information is available on the AIAA website, <http://www.aiaa.org/calendar/ssdmc00cfp.html>. A list of potential SDM session titles is also included for the proposed session below.

1. Paper Rating

First, review the attached excerpts for the corresponding sessions. Based on the following category and rating definitions, i) determine and fill in the appropriate rating for each category, ii) calculate the total rating by adding three individual ratings, and iii) calculate the final rating by multiplying 0.15 to the total rating. This process will result in the final rating out of 3.0.

Technical Content: Does the abstract demonstrate that the technical content of the paper will be substantial? Does the abstract show correctness of theory, validity of reasoning, grasp of subject, etc.? Are all major factors considered? Are the conclusions supported by the abstract?

Originality: Is the abstract just a compilation of standard textbook information? Do the authors show independent thinking or a fresh approach to the subject? Were similar results or approaches reported previously by the authors or others?

Completeness: Does the abstract have sufficient information as required by the Call for Papers? Does the abstract include data, figures, etc. to support the conclusions? Does the abstract indicate that the work will be completed in time? Is the abstract written in a clear concise form?

Excellent: Exceeds the requirements significantly, outstanding quality.

Good: Meets the requirements clearly, good quality.

Fair: Does not meet the requirements, but interesting and worth hearing.

Unacceptable: Does not meet the requirements, not interesting.

2. Proposed Session

Based on the session titles listed on the enclosed sheet, identify two sessions in which this paper would fit. If none of the proposed session titles appears appropriate to you, enter your own recommendation.

3. Comments

Provide a brief explanation of your rating, particularly if you propose to reject the paper. Also, if you think that the paper would be better suited for a work-in-progress or the technology exhibit, please indicate so in your comments.

Excerpts from the 42nd SDM Call for Papers (Draft)

For general sessions:

"Selection of papers and/or presentations for all areas and sessions will be based upon abstracts of no less than 1,000 words and no more than 1,500 words, with key figures and references to pertinent publication in the existing literature. Authors must clearly identify in the abstract new or significant aspects of their work. ..."

For specially organized technical sessions:

"... Abstracts submitted for the special session must also be submitted by 2 August 1999 to the Technical Program Chair for inclusion in the normal paper selection process."

For interactive plenary sessions:

"... Participation in this session does not preclude submittal of a paper and/or publication of the work; however, the full-paper requirement will be waived for participants from industry to encourage their participation. Selection of poster presentations will be based on abstracts of no less than 1,000 words and no more than 1,200 words, with key figures and references to pertinent publications in existing literature. Authors must clearly identify in the abstract new or significant aspects of their work. ..."

For work-in-progress sessions:

"... Participation in these sessions does not preclude submittal of a paper and/or publication of work. Interested individuals should submit a one-page abstract in triplicate. ..."

For student papers:

"Student papers should report on work primarily conducted by students in collaboration with their faculty advisors; therefore, all primary authors of papers submitted as student papers must be students at the time the abstract is submitted for consideration. ... Submit abstracts or full-length drafts to the coordinator for the student papers by 27 September 1999. ..."

Potential SDM Session Titles (Draft)

Acoustics
Advanced Structural Applications
 Deployable Structures
Aerodynamics
Aeroelasticity
 Flutter
Aircraft Dynamics
Buckling
Composites
 Composite Design, Analysis, &
Testing
 Composite Structural Dynamics
 Damage & Failure of Composites
Computational Mechanics
 Computational Structural Analysis
 Computational Structural Dynamics
Damage Detection
 Health Monitoring
Design Engineering
Dynamics
 Dynamic Analysis
 Structural Dynamics
Experimental Dynamics & Testing
 Actuators & Sensors
 Modal Test & Analysis
Fatigue & Fracture
Launch Vehicle Dynamics
Loads & Dynamics
 Buffet
Material Properties & Behavior
 Damage Tolerance
Mechanics
Nonlinearity
 Nonlinear Analysis

Optimization Methods
 Design Analysis & Optimization
 Multidisciplinary Optimization
 Sensitivity Analysis & Applications
Plates & Shells
Probabilistic Applications & Reliability
Rotorcraft Dynamics
Spacecraft Dynamics
 Microgravity Dynamics
Stresses
Structural Control
 Control-Structure Interaction
 Vibration Control
System Identification
 Damping
 Modeling
 Model Correlation & Update
Thermo-Structural Analysis
Turbomachinery Dynamics
Vibration
 Random Vibration

Attachment 3



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Building
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Gainesville, FL 32611-

Dear SDTC Members:

I've had input from various members regarding the coordination and review of the student papers submitted to this year's SDM2000. I thought it would be useful to provide a summary and review of the student paper competition for SDM2000.

I was not able to attend the planning meeting in Atlanta, and I would again like to thank Phil Beran for presenting a summary of the student paper sessions at that time.

In summary:

- 1) A total of 14 student papers were received. Two have been rejected and the remaining 12 papers have been organized into two sessions entitled

SDM-17 Dynamics, Control and Modeling
SDM-31 Composites, Fatigue and Modeling

Whether one believes that faculty should be able to serve as a co-author on a student paper can certainly still be debated. But the results are clear: the idea allowing full time researchers to serve as co-authors has resulted in a significant number of participants during the its first attempt. While we can certainly improve on the logistics of how the review process proceeds in the next year, I think Manohar and Firdaus deserve credit for re-vitalizing the student paper competition at SDM2000.

- 2) There was little to no "advertisement" of the new rules regarding the student paper competition. In part, this was intentional; we did not want the student paper competition to grow beyond reasonable limits. Given how little emphasis we was placed on the new rules, a number of participants were quick realize the import of the changes. We should anticipate at least a modest increase in participants next year.
- 3) Several related problems could be identified with this year's process:
 - i) The due date for the student papers was set for September 29. It was scheduled, apparently accidentally, after the SDM planning meeting. We were committed to accept abstracts that arrived after the planning meeting.

Out of the 14 abstracts received, ~6-7 arrived at my office after the SDM planning meeting.

- ii) Several student participants exploited the late due date, and several of these students had advisors that were well-aware of the SDM abstract review process.
- iii) While other SDTC members were focussing on getting abstract reviews for the main body of submissions, we were still waiting for the student abstracts to trickle in. A uniform review process is impossible with the current choice of a late student abstract date.
- iv) With such a late submission date, it was impossible to distribute the student papers “transparently throughout” the regular sessions as planned.
- v) We were very lucky indeed that the student papers fell in two nearly even categories: dynamics or composites. This enabled us to simply create two student paper sessions. We should not count on being so lucky in the future.

In summary, then, I would suggest the following for future student paper competitions:

- i) Continue the policy of allowing (1) faculty member / researcher to co-author a student paper.
- ii) Make the due date for student paper abstracts identical to that for the regular papers.
- iii) Disseminate student abstracts through the same review process as regular papers: make the review process uniform.
- iv) Distribute the student papers throughout the regular sessions: have no sessions that are recognized as "dedicated to" student papers.
- v) Rename the “Student Paper Competition” to the “Student Paper and Presentation Competition” to emphasize the importance of both the paper (with seasoned co-author) and presentation by student.

I would be glad to assist anyone who takes over the student paper competition next year.

Best Regards,

Andy Kurdila

Attachment 4

SDM ABSTRACT REVIEW PROCESS

H.-M. Kim, Boeing-Houston, 10/99

- Goals
 - Make the abstract review process more uniform and objective
 - Make the review as simple as possible while providing a way and sufficient information for evaluating abstracts consistently
 - Provide explicit guidelines to reviewers who may be less familiar with SDM abstract requirements and review process

- References
 - Current SDM Call for Papers and abstract review process
 - Suggestions and comments from SDTC members
 - AIAA student conference abstract review process
 - AIAA journal review process
 - Other journal and conference paper/abstract review processes

- Issues considered
 - Determine if the (similar) work has been presented previously
 - Determine if the work will be completed by the deadline
 - Determine if the length of abstract is too short or too long
 - Need to score out of 3.0 to make it consistent with the original review scoring
 - Provide an indication of reviewers' knowledge in the area to understand if there are substantial differences
 - It may not be practical; may leave to a person who is distributing abstracts for review
 - Require an abstract, an extended abstract, or a full paper for review
 - It may not be necessary with new abstract length requirements: both the minimum and maximum

- Issues remained (issues beyond SDTC)
 - Process all abstract submission, review, etc. electronically using website and internet
 - Minimize or discourage "no-show"
 - AIAA may either maintain no-show database or charge a fee for no-show
 - Make the CD available at the conference (currently 6 month lag)
 - AIAA may also consider dual proceedings: abstract proceedings on paperbacks and full paper proceedings on CDs

- Implementation
 - Draft abstract review guidelines and review form are attached
 - Provide comments to P. Taylor and H.-M. Kim by November 17, 1999
 - If the majority of comments are positive:
 - Finalize the abstract review guidelines and review form
 - Provide one guideline per reviewer and one form per abstract starting from the 2001 SDM abstract review
 - It can be used for other SDM sessions: specially organized technical sessions, interactive plenary sessions, work-in-progress sessions, and student paper sessions
 - One immediate action required: request a change in Call for Papers as soon as possible

Attachment 5
Tips for Structural Dynamics TC SDM Conference Representatives
Goggin/Taylor/Beran

This document represents an on-going effort to improve the process for organizing the Structural Dynamics sessions of the Structures, Structural Dynamics and Materials (SDM) Conference, and represents an update/revision to the notes presented in 1998 by Pat Goggin, 1999 by Paul Taylor and 2000 by Phil Beran.

The following are the major areas of responsibility for the SD TC representative, put roughly in the order that they show up:

- Preliminary Organization
- Organize reviewers
- Organize special sessions
- Manage review process
- Organize preliminary session layout
- Organize session chairs

These areas will be expanded on in the following sections:

Preliminary Organization

The Technical chair needs good contact information for the SD TC representative. This should include:

1. Telephone number
2. E-mail address
3. Express delivery address (this needs to be a street address, not a P.O. Box address). Whenever express delivery is used, the package should be delivered even if no one is available to accept delivery. This may have to be pre-arranged in some instances.

Organize Reviewers

This task should not be under estimated. The Structural Dynamics TC generally receives the largest number of abstracts and for 1999, 151 abstracts were submitted for review. This requires 453 individual reviews. This means (roughly) 10 abstracts per SD TC member. Typically, individual reviewers have taken about 6 papers, so you can see that organizing a large review pool is a significant task. The larger organizations (Boeing, NASA etc) will generally take 20-30 papers, and smaller ones 10-15 papers. **Hold off on adding your own organization to the review team** until the very end. Inevitably, late abstracts will arrive and the most expedient way to handle them is to review them locally.

Each reviewer needs to be contacted personally. A good starting list is the TC membership. This is why it is important to have accurate contact information on file with the Secretariat. As will be seen later, it is also very important to have the technical interests of the members to distribute reviews to appropriate reviewers. Also find out how many papers individuals will be willing to review, and solicit for potential chair

positions simultaneously (especially with a concurrent DSC, since we compete for the same SDTC members).

When contacting the reviewers, once again obtain contact information:

1. Telephone number
2. E-mail address
3. Express delivery address (this needs to be a street address, not a P.O. Box address). Whenever express delivery is used, the package should be delivered even if no one is available to accept delivery. This may have to be pre-arranged in some instances

When contacting reviewers who will distribute the abstracts within their organizations, make sure they are the focal point for those reviews. You do not want to have each individual reviewer contacting you. **All reviews from an organization should funnel through the single contact.** However, individual reviewers should sign their name on the review for tracking purposes, or for future clarifications in the event of a rejection. Make sure to get this information before the abstract due date, because you will receive abstracts before this time, and it is efficient to already have mailing labels available.

The most expedient way to send the reviews back is via fax, so this should be the preferred method and this should also be explained to the reviewer. If time is running out, the scores can be emailed, with the review sheets to be sent later. The review sheets are important because the comments on rejected papers are used in drafting the rejection letters, but this occurs later in the time line.

Organize Special Sessions

The term “special session” is somewhat nebulous. I believe it was intended to be a session with a program or project theme, but seems to have evolved into a special interest session. In reality, each session is organized along these lines. The only difference is that the special sessions are pre-arranged, while general sessions fall into place as the review process progresses.

Having said this, the special sessions almost organize themselves, but past experience has led to the following observations.

Special sessions must be sponsored by a TC (this is a requirement, not an observation), so if a session is going to happen, the organizer (or the Technical Chair) will contact you about it.

The organizer must understand that all abstracts for special sessions are subject to the same review process as any paper submitted to the SDM, and there is the possibility that the paper could be rejected. For this year’s SDM, there was a 5 paper minimum, so realistically 7-8 papers should be slated for the special session.

Work with the organizer on the session and identify papers in the rest of the SDM that could be moved into the special session. Have the organizer propose session chairs and paper orders (once the final papers are known).

As far as the paper reviews themselves, I was initially in favor of having the organizer review the papers in their special session, however, I don't think this is a good idea. **To get the most objective reviews, the organizer should not review papers in their own special session.**

As a final note on special sessions, even though it happened for the 1999 SDM, special sessions should not consist of papers from just one organization, unless it relates to a specific program or project (e.g., HSCT Aeroelasticity).

Manage Review Process

Develop a set of categories that will (hopefully) encompass the topics presented in the abstracts. This can be derived from previous years' session topics and previous years' TC reps (1998 – Pat Goggin, 1999 Paul Taylor). If the special sessions are known at this point, they can be included.

Once the categories are defined (these can be modified once the actual abstracts arrive) assign reviewers to each category (**this is why the interests of each TC member is important**).

Each abstract needs to be broadly categorized, to identify an appropriate reviewer. Some can be categorized by the title, others may need to be briefly read.

I developed a spreadsheet to track the required number of reviewers and the scores. If this could be standardized, it would be a great benefit to the TC representative.

Make sure that you do not send a paper to a reviewer who is a co-author of the paper!! [This is hard to check; I spent a lot of time on this for SDM2000, since in my spreadsheet I only kept track of first author. I caught several conflicts, but it would have been easier, at this stage, if I tracked all authors. It is probably easier to check for conflicts at the time abstracts are sent out.]

Each abstract normally arrives in quadruplicate, one for the TC rep, and one for each reviewer. It is important to retain the extra copy, in case abstracts need to be transferred to other TC's, or an abstract needs to go to a different reviewer than originally intended.

Set a realistic deadline for the review process. Bear in mind that once all the reviews are in, the Structural Dynamics cut-off score needs to be determined (by you) and a preliminary Structural Dynamics session layout has to be formulated prior to the fall planning meeting. For the 1999 SDM, I allowed 3.5 weeks for the reviews and one week to determine the cutoff score and layout the sessions. For SDM 2000 about 2.5 weeks for the reviews was allotted; but about 1.5 week less time was provided by the Tech. Chair to finalize the Dynamics program.

Keep in constant contact with the Technical chair to determine the status of incoming papers. This year, the papers came in two big batches, although there were some smaller packets that arrived later in the review cycle. As in past years, abstracts are received by the Technical chair past the deadline, and the policy on when to stop receiving abstracts for review has been "What you can stand". This year I did not tell the Technical chair to stop sending abstracts, as the majority were out of the way earlier, and the small number

of late abstracts could be easily handled. This should not be made public, otherwise we will end up with a large quantity of late abstracts.

Once again, use express mail to send abstracts. The 3.5-4 week review time frame necessitates this. Also, delivery should be made regardless of whether anyone is there or not. In some instances it may be better to send the package to the home address of the reviewer (mail can be held up in large companies). This should be determined when contacting the reviewer. For SDM 2000, abstracts were sent out using priority US mail from Wright-Patterson to avoid the bureaucratic red-tape of getting next-day service. This slowed down some deliveries, giving reviewers less time, but made it easier to send out abstracts and avoided problems with delivery addresses.

Keep tabs on the reviewers, particularly if they are new to this process. Check up prior to the deadline, and on the deadline date. If need be have the reviewer email or fax the scores, so you can continue the process of setting the cut-off and session layout.

As late abstracts arrive, check to see who can review them. This is where your own organization becomes very handy.

As the review process is proceeding, periodically review the master abstract list (which is emailed via the Technical chair). This is where you can determine if a paper needs to be transferred to the SD TC, or vice versa. Also, check on paper numbers between this list and the actual abstract. Sometimes the numbers get mis-referenced. However, this was not done for SDM 2000, resulting in 2 papers identified as mistakenly assigned at a very late point in time.

Organize Preliminary Session Layout

The Technical chair should provide a guideline as to how many sessions each TC gets, when they are and the maximum number of papers allowable in each session. Data from previous SDM's is also a great help.

However, before the layout process begins, the cut-off score needs to be determined. Based on the Technical chair's preliminary layout (maximum number of papers, sessions etc.) the upper limit can be determined. Looking at a frequency plot of the scores, there is generally a break at in the scores at a reasonable cut-off. In 1997, the cut-off was between 1.43 and 1.5, and the acceptance ratio was 0.83. For 1998, the cut-off was 1.33 and the acceptance ratio was 0.87. For the 1999 SDM, the cut-off score was 1.17 (scores of 1.17 were included in the conference), and the acceptance ratio was 0.83.

Once the cut-off score is determined, those papers at or above the cut-off are then included in the conference. Sessions can be layed out based on previous years, but in the past couple of years, we have tried to be a little more descriptive with the titles to help conference attendees. Topics such as Rotorcraft Aeroelasticity are a little more helpful than Aeroelasticity II!! However, invariably, titles will be left over that will end up in a more general session (Aeroelasticity, Dynamics etc.). The comments from the abstract reviews can be used as a guide as well.

Once papers have been assigned to sessions, including the special sessions, the sessions need to be layed out on particular days. With Structural Dynamics having so many

sessions, it is impossible to avoid conflicting sessions. The best one can hope for is to minimize conflicting topics (e.g., Flutter going against Aeroservoelasticity and so on). In some instances this too is impossible to avoid.

Another point to be aware of is to make sure authors with multiple papers are not scheduled at the same times!! My guideline for this year was to have at least one paper separation in time (obviously more is desirable).

In terms of how to position papers within a session, the special session organizers should help out on their sessions. Sometimes there is a logical flow of papers and if all else fails try putting them in order of scoring (best first).

Another point to note is to have an idea of which sessions are fluid (in terms of time, day and papers) and which are not, when going into the fall planning meeting. Invariably sessions will have to be shuffled amongst the various TC's and if you have definite thoughts on your session layouts, it will greatly aid the fall planning process.

The final document you have for the fall planning meeting (and bear in mind that this needs to be finished before the meeting to give the Technical chair time to prepare the overall program) should have the proposed session title, time (day, AM/PM), number of papers, paper numbers (in your desired order) and estimated attendance. The attendance can be estimated from past conferences, with AIAA having the most recent available.

Organize Session Chairs

The session chairs should be organized (at least in a preliminary fashion) prior to the fall planning meeting. There should be two people identified for each session (although this is not a hard rule). Once again, the TC should provide a good portion of the chairs. In addition, people who have reviewed papers provide a good source. Also look at session chairs from past conferences.

One reason for having session chairs mapped out before the fall meeting is to ensure no duplication of effort between TC's.

The following table shows a time line of the events for the 1999 SDM. This is typical for a given year

Figure 1: 1999 SDM Planning Timeline

	1998									1999			
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Spring Planning	4/20 ▲												
Special Sessions Proposals				7/1 ▲									
Abstracts Due					8/3 ▲								
1 st abstracts at SD TC					8/21 ▲								
Reviews					[Shaded Area]								
Cut-off score, session layout						9/25							

session layout to Tech Chair													
Fall Meeting							10/2						
Final Program to AIAA							10/7						
Accept/Reject Letters								11/1					
Manuscripts Due										2/1			
1999 SDM Conference													4/12-15

For SDM 2000, we were given much less time. Our planning meeting was held on 24 Sep. and the Dynamics layout was requested on 13 Sept., about 12 days in advance of the 1999 date. I managed to get the layout in on 15 September, and was only successful in making this date by taking time out of the review process, and by having a smaller number of papers.

The 1999 SDM paper scores and session organization are presented in the following:

Figure 2: 1999 SDM TC Cut-Off Scores

<u>TC</u>	DYN	ASF	STR	MAT	NDA	MDO	DES	Total
# Sessions	22	10	17	6	8	6	3	72
# Reviewed	151	59	81	34	47	33	20	425
# Accepted	125	56	72	30	43	32	16	374
# Rejected	26	3	9	4	4	1	4	51
Accept Ratio	0.83	0.95	0.89	0.88	0.91	0.97	0.80	0.88
Cut-off Score	1.17	1.27	1.00	1.70	1.00	1.17	1.50	

SDM 1999 Structural Dynamics Score Chart

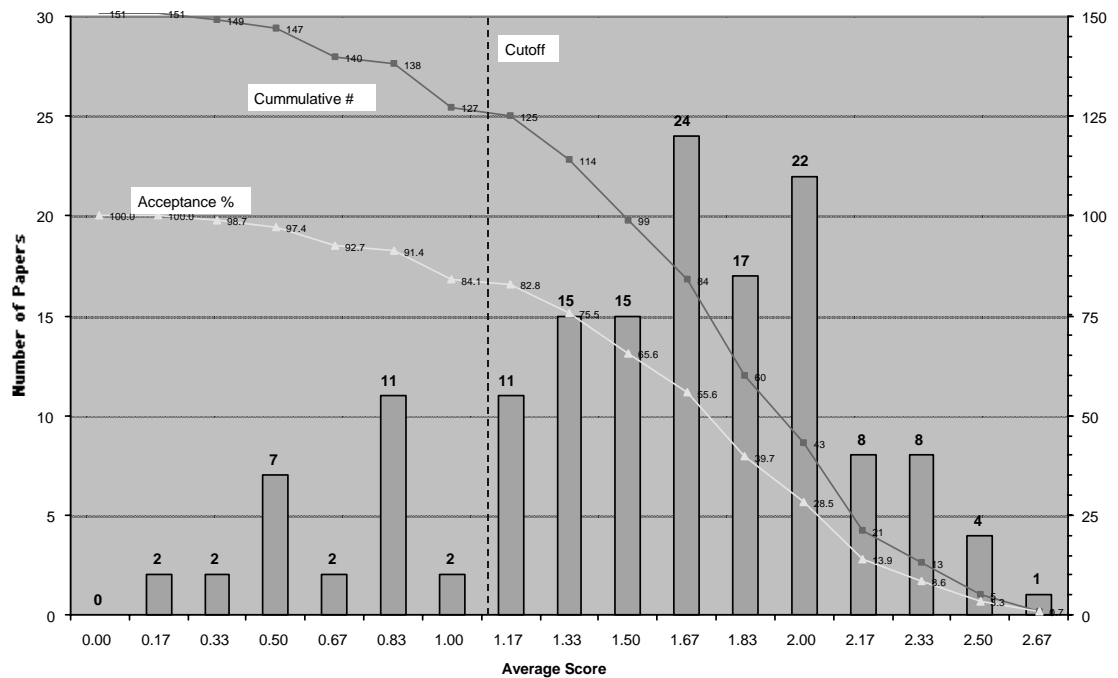


Figure 3: 1999 SDM Abstract Reviewers

Reviewer	Organization	Reviewer	Organization
Myles Baker	Boeing	D. Lee	UCSD
Robert Bartels	NASA Langley	Rick Lind	NASA Dryden
Ted Bartkowicz	Boeing	John Maynor	Northrop Grumman
Robert Bennett	NASA Langley	Anna-Maria McGowan	NASA Langley
Jeff Bennighof	U. Texas	Doug McKissack	Gulfstream
Phil Beran	AFRL	Robert Moses	NASA Langley
Marty Brenner	NASA Dryden	Kevin Napolitano	UCSD
Terry Britt	Northrop Grumman	Chan-gi Pak	Boeing
Inderjit Chopra	U. Maryland	Boyd Perry	NASA Langley
Kirk Dotson	Aerospace Corp.	Dale Pitt	Boeing
Frank Eastep	U. Dayton	Marc Regelbrugge	Lockheed Martin
Don Edberg	Boeing	Eric Reichenbach	Boeing
Don Freund	Gulfstream	Stephen Rizzi	NASA Langley
Peretz Friedman	U. Michigan	David Schuster	NASA Langley
Pat Goggin	Boeing	Robert Scott	NASA Langley
Ken Griffin	SRI	Walter Silva	NASA Langley
Bill Hallauer	USAF Academy	Jim Solti	USAF Academy
L. Horta	NASA Langley	Thomas Strganac	Texas A&M Univ.
Stuart Hsu	Honeywell	Ralph Tate	Lockheed Martin
Larry Hutsell	AFRL	Paul Taylor	Gulfstream
Susan Janssen	Lockheed Martin	Roger Truax	NASA Dryden
Paul Janzen	Boeing	Leonard Voelker	NASA Dryden
Dan Jensen	USAF Academy	David Voracek	NASA Dryden
Conor Johnson	CSA Engineering	Donald Waters	USAF Academy
Mohamed Kaouk	Boeing	Carol Wieseman	NASA Langley
Hyoung Man Kim	Boeing	Shu-Yau Wu	Boeing
John Kosmatka	UCSD	Kuo-An Yuan	Boeing
Andrew Kurdila	U. Florida	Rudy Yurkovich	Boeing
John Lassiter	NASA Marshall	Thomas Zeiler	U. Alabama

Final Remarks (1999)

Some general comments about the whole process:

The MDO TC tried to get one industry review, one government review and one academia review for each paper. (This would be nice but Structural Dynamics has 5 times the number of papers!)

The Design TC tried to get an extra review if the paper was rejected. While this is also a good policy in theory, once again Structural Dynamics had many more abstracts to review, and hopefully having 3 reviews per paper should be sufficient.

Two items made the abstract review longer and more complex. The first was the inability for the author to identify which TC should handle the abstract. AIAA explained that there is one boilerplate Conference "Call For Papers" and it had room for a proposed session title, but no room for a TC. Perhaps this is something to be discussed between the TC's and AIAA. The second item was the length of abstracts. Some abstracts were barely minimum length, whilst at the opposite end of the spectrum, full-length papers were submitted. Perhaps the TC should come up with a guideline on how to fairly grade such wildly varying content. (The requirement is for abstracts of no less than 1,000 words).

Additionally, one aggravating aspect of the organization process was sorting through the abstracts. If the reviewers could sort them numerically when sending them back, this would aid the layout process. (This is a small but significant item!)

Finally, if there is an Excel wiz who would be interested in providing some type of automated tracking spreadsheet, I feel this would be a great aid for the TC representative.

Final Remarks (2000)

This year, abstracts were not assigned tracking numbers by the Tech. Chair when sent out, nor were abstract review sheets supplied. This was a huge stumbling block when dealing with a large quantity of abstracts, and is contrary to what I understand has been done in the recent past. We built individual review sheets in Word format and loaded titles and author names, and assigned Dynamics tracking numbers. This activity was particularly onerous, since we were given less time to review and build session layouts. **A clear plan for handling abstracts (between Tech Chair and superchairs) should be formed at the spring planning meeting** to avoid surprises in August and provide a reasonable time-line for the work expected. Also, the chair sent out all 6 abstracts, and made a copy for safe keeping. However, 6 abstracts were not needed; 4 would have been adequate (but I couldn't bring myself to throw away the other 2). This probably took a little extra time on the Tech Chair end that was unnecessary and led to a larger pile on my end. Again, plan ahead.

Do as much up-front as possible, such as soliciting potential reviewers for help and drafting letters to go out with abstracts. These steps can be taken before abstracts arrive. If abstracts of similar content are received early, send them out as soon as possible to reviewers with consistent interests.

Make sure that the submission deadline for all SDM abstracts is the same. This year, the student papers could actually be submitted after our fall planning meeting, which led to difficult coordination problems and the unfortunate necessity to form student papers sessions. Some nice papers appropriate for Dynamics were thus not available to be included in our sessions.

Make sure to get a comprehensive list of abstracts from the Tech Chair to look for mis-assigned papers. Also, be aware that some papers were submitted to multiple SDM/DSC components, with sincere intent, but with the consequence of increased labor.

Get as much information as possible about SDM 2001 procedures. I have heard that AIAA will be moving to on-line submissions, and there will probably be plenty of rough spots in the first year.