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Mānoa Chancellor's Office

APPROVED:

Date

UNIVERSITY OF HAWAII AT MĀNOA INSTITUTE FOR ASTRONOMY

PROCEDURES AND CRITERIA FOR PROMOTION, TENURE, AND CONTRACT RENEWAL

Approved by the IfA Faculty on August 15, 2017

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I. GENERAL INFORMATION

- These Procedures and Criteria cover faculty personnel actions—promotions, tenure, and contract renewal—for the Institute for Astronomy (IfA). They supplement the general criteria and guidelines for the Mānoa Campus (http://www.Mānoa.hawaii.edu/ovcaa/faculty/tenure_promotion_contract_renewal/), and should be reviewed periodically to ensure that they remain consistent with general University and Mānoa policies. Should there be a conflict between the provisions of this document and the University and Mānoa policies, the latter shall prevail.
- 2. All dates indicated in these procedures are approximations based on past experience; specific deadlines for each year are published by the University and Mānoa Campus.
- These Procedures and Criteria apply to all IfA BU07 faculty, whether in I, R, B, or S appointments, or combinations thereof.
- 4. Faculty are defined herein as personnel holding I, R, B, or S appointments, wholly or in part within the IfA, at ranks 3, 4, or 5. Excluded are lecturers or visiting faculty, and those in Executive/Managerial positions such as the Director and Associate Director.
- 5. The abbreviation FPC is used herein to apply to the IfA Faculty Personnel Committee.
- These Procedures and Criteria are subject to approval by a majority vote of all IfA Faculty.

II. If A FACULTY PERSONNEL COMMITTEE

The Institute for Astronomy Faculty Personnel Committee (FPC) shall consist of seven (7) tenured IfA faculty members elected each year by the IfA BU07 faculty members. The details of FPC membership, terms of service, and election procedures are as follows:

A. Number of members

Given the size and diversity of the IfA, as well as its distribution over several islands, this committee will consist of seven (7) tenured faculty members.

B. Eligibility

All tenured IfA faculty members are eligible to serve on the FPC except for those who:

- 1. Are applying for promotion in the current year, or
- 2. Are on leave during the Fall Semester of the current year, or
- 3. Have served on the past two FPCs.

C. Term

The term of service of the FPC is one (1) year. In accordance with B.3, no member may serve more than two consecutive terms.

D. Election Procedure

1. The FPC is elected each year, typically in September. Prior to the election, the Director will announce which faculty member(s) will be applying for promotion or tenure.

- The candidates on the ballot shall be all tenured faculty members who are eligible in accordance with Section B above.
- 3. The electorate shall consist of the entire body of IfA BU07 faculty members, including those who are applying for tenure or promotion.
- 4. Each member of the electorate will vote for seven candidates. The FPC will consist of the candidates who receive the seven highest numbers of votes. In the event of a tie, a runoff election will be held.
- 5. In order for an election to be valid, a quorum of 50% of eligible voters is required. In the absence of a quorum, a new election will be held.

E. Responsibility to Serve

Service on the FPC is an important duty expected of all tenured faculty members if elected. Faculty may not be excused from service on the FPC on the grounds of overwork or any other reasons beyond those listed in Section F.

F. Exclusion from Service

An FPC member must be excluded from review of a specific applicant if there is reasonable cause to believe that his/her judgment may be clouded by special personal or professional factors related to that applicant, or that his/her presence on the committee would inhibit open discussion of that applicant by other members of the committee.

- Exclusion initiated within the FPC: FPC members shall disclose to the FPC any of the aforementioned factors
 that exist between themselves (or other FPC members) and any applicant. The affected FPC member shall be
 excluded from the review of that applicant.
- 2. Exclusion initiated by the candidate: Prior to the start of the review process, if an applicant has a serious concern that one FPC member cannot fairly evaluate his/her application, s/he shall report this concern to the FPC Chair and that member shall be excluded from the review of that application. Such requests can identify no more than one FPC member.
- 3. If there are fewer than five (5) eligible FPC members to review an application, the committee will be augmented based on the next highest vote recipient(s) from the FPC election, subject to the exclusion process outlined above.

G. FPC Chair

At the first meeting, the FPC shall select one of its members as the Chairperson.

III. PROCEDURES FOR HANDLING PROMOTION AND TENURE APPLICATIONS

A. Notification

During the first half of August, the Director will send written notification to faculty who are eligible for promotion or tenure in the upcoming academic year. This will include faculty who will be entering their final probationary year and thus will be due to apply for tenure. The notification will:

- 1. Inform the faculty member that he/she is eligible to apply for promotion or due to apply for tenure.
- 2. Inform the faculty member how to obtain the application form and the UH Mānoa Criteria and Guidelines for Faculty Tenure/Promotion Application.

- 3. Provide a copy of the IfA Procedures and Criteria for Promotion, Tenure and Contract Renewal.
- 4. Inform the faculty member of the procedure for submitting the application and the submission deadline.
- 5. Require that faculty members who plan to submit applications notify the Director's office by September 1.

 Applicants should also submit by this deadline their list of external evaluators (as described below in III.C).

B. Submission of Application

Applicants for promotion or tenure must submit the original signed application to the Director's office by the published deadline. The Director's office will assist the applicant in making the necessary copies of the application, unless the applicant wishes to do this on their own.

Applicants who are requesting a waiver of minimum qualifications or an adjustment of probationary period must inform the Director at the earliest opportunity. It is recommended that this be done before July 1, because these actions have separate deadlines. Any faculty member who has questions about eligibility or other aspects of an intended application is encouraged to meet with the Director well before the application deadline.

C. External Evaluations

The Institute will obtain external evaluations of each applicant's work. An evaluator should be at or above the rank being sought by the applicant; be professionally capable to assess the applicant's work objectively and comment on its significance for the discipline; and be a highly respected scholar. Each applicant will be asked to provide, along with the application but separate from it, the names and addresses of at least five possible evaluators that are not at UH Mānoa. Evaluators should hold the rank that the applicant is applying for or higher rank, and should not be the applicant's PhD or postdoctoral advisor. Applicants should not contact possible external evaluators. The FPC will select at least three evaluators from the applicant's list and will identify an equal number of other external evaluators.

Following the selection by the FPC, the Director will request from each evaluator a confidential assessment of the quality and significance of the applicant's work, focusing on the time period since the applicant's hiring date or last successful promotion application, whichever is closer to the present. The applicant's curriculum vitae and bibliography will be enclosed with the letter. Other details of the request and the handling of the evaluations will comply with current University requirements, in particular with regard to confidentiality.

The FPC must receive a minimum of three letters from the applicant's list and three letters from evaluators chosen by the FPC. If the initial set of requests does not yield this result, then more evaluators must be solicited until these minima are achieved.

D. FPC Assessment and Recommendation

- 1. For each application the FPC will:
 - a. Read the application dossier.
 - b. Obtain and review external evaluations as described above. The evaluations will remain confidential to the FPC.
 - c. Compile citations to the applicant's work and other relevant metrics (e.g. H index) and then compare these with compilations for a peer group (in field and number of active years since Ph.D.).
- 2. The FPC will not accept unsolicited input.

- 3. Based on the material described in III.D.1, the FPC will assess the applicant's performance in those areas listed below which are relevant to the applicant's type of appointment and associated duties. The assessment will use the evaluation criteria in sections VI through IX below, where relevant.
 - a. Research
 - b. Teaching, including advising of students and postdocs
 - c. Service to the Institute, the University, and the wider community, including the management of major facilities
- 4. The FPC will prepare a written report including a summary of the FPC's findings and an analysis of those findings relative to the UH Mānoa and IfA criteria for the position being sought. If it so desires, FPC may make a recommendation for or against the application based on a secret ballot. For promotion, only FPC members of rank equal or higher than that to which the applicant has applied will participate in the review process and voting. If there are fewer than five (5) eligible FPC members to review an application, the committee will be augmented based on the next highest vote recipients(s) from the FPC election. All eligible FPC members must cast a vote. The result of the secret ballot and associated recommendation will be included in the report.
- 5. The FPC's report and recommendation will be added to the dossier and forwarded to the Director.

IV. <u>PROCEDURES FOR EVALUATION OF PROBATIONARY FACULTY AND CONTRACT</u> RENEWAL RECOMMENDATIONS

A. General Procedures

The FPC will evaluate the performance of probationary faculty and make recommendations on contract renewal in accordance with the requirements of the collective bargaining agreement. The evaluation will:

- 1. Assess the faculty member's strengths and weaknesses
- 2. Determine whether the faculty member's performance is satisfactory
- 3. Determine whether there is a continuing need for the faculty member's services at the Institute
- 4. Determine whether the faculty member has demonstrated the professional and personal qualities needed by the Institute.

Based on this evaluation, the FPC will make a recommendation as to whether the faculty member's contract should be renewed.

B. Material to be provided by Faculty Member

Prior to September 1, the Director will ask each probationary faculty member who is entering the final year of his/her current contract to submit the following by a specified deadline:

- 1. Curriculum vitae
- 2. Bibliography

- 3. Narrative account of professional activities and achievements since hire or most recent review (whichever is closer to the present) in the following areas, as appropriate
 - a. Research, including a list of refereed publications, grants and contracts received
 - b. Teaching, including a list of courses taught and any available student evaluations of those courses
 - c. Graduate student supervision
 - d. Service activities
 - e. Prizes and awards
 - f. Other professional activities and contributions
- 4. Plans for future research, teaching, support and service activities

C. FPC Evaluation

The FPC will write a narrative assessment of the faculty member's performance based on the material provided and as specified in IV.A. 1-4 above.

The FPC will make a recommendation as to whether the faculty member's contract should be renewed. The FPC Chair will provide a copy of the assessment and recommendation to the faculty member. The faculty member will have an opportunity to respond to the assessment in writing, which response will be given to the FPC Chair.

The FPC Chair, will forward the assessment, recommendation, and any faculty member response to the Director by the contractually specified deadline.

V. PROCEDURES FOR EVALUATION OF FACULTY ON LIMITED-TERM APPOINTMENTS AND CONTRACT RENEWAL RECOMMENDATIONS

A. State-Funded Appointments

This section applies to faculty members on limited-term contracts which are funded at a level of 25% FTE or greater by State General funds or by other IfA internal funds. These faculty members will be evaluated during the second year of their appointment and at least once every three years thereafter. At the appropriate time, the Director will ask the faculty member to submit the material described in Section IV.B.3. The specific duties of the limited-term appointment will determine which of the items IV.B.3 (a-f) are relevant. The FPC will write a narrative assessment of the faculty member's performance based on the material provided and on the duties of the position. The FPC will also provide a recommendation as to whether the appointment should be renewed. If the faculty member has been reviewed for some other purpose (e.g promotion or Special Salary Adjustment) during the past three years, then that review can substitute for the review described above.

B. Externally-Funded Appointments

This section applies to faculty members whose limited-term contracts are funded either entirely by external grants or contracts or by a combination of external and internal funds (G-funds or other) where the internal share is less than 25% FTE. These faculty members are subject to review on the same schedule as State-funded limited-term faculty. The continuation of these limited-term contracts is determined not only by the performance of the faculty member, but also by the ongoing needs of the grant or contract and the availability of funding. Accordingly, the

decision to renew is primarily the prerogative of the Principal Investigator. In cases where the PI is also the faculty member being reviewed, the prerogative lies with the Director. The purpose of these reviews is to ensure that these faculty members are not only fulfilling the requirements of their external funding, but are also maintaining the professional standards of performance expected of all IfA faculty. For these reviews, the FPC will provide a narrative assessment, but will not provide a recommendation on renewal unless requested to do so by the Principal Investigator or the Director.

VI. CRITERIA FOR PROMOTION AND TENURE

A. Basic Philosophy

The Institute needs many kinds of talent, and no one person can be expected to have them all. Further, the responsibilities and opportunities of the Institute change with time, and this also should be reflected in the evaluation criteria. Consequently, the guidelines outlined here should be broadly interpreted and frequently reviewed.

The Institute for Astronomy (IfA), as a research organization with unique advantages in location and facilities for carrying out front-line basic research, has an obligation to the University, the State, and the Federal agencies that provide its financial support to seek and maintain appropriate standards of excellence. In personnel evaluation, we should recognize that standards are set nationally in the astronomical profession and should whenever possible make comparisons with peer institutions on the mainland that have research facilities and levels of financial support similar to our own.

The primary activities to be considered in evaluating personnel are summarized in Sections VII through IX. The relative weight given to each activity will depend upon the current needs and priorities of the Institute, the conditions of the candidate's appointment, and the candidate's submitted statement. However, a candidate with an R or I appointment is expected to have spent at least 50 percent of his or her time in research activities. If a substantial fraction of a candidate's time has been spent in service or teaching, it is understood that the quantity of his or her research work is likely to be decreased, but in no case should such non-research activities excuse a lack of quality in the research being evaluated. For a candidate with an S appointment, other professional activities may be considered in place of direct research output.

B. General Criteria

Each Personnel Committee must apply its own standards and consider each case before it individually; therefore it is undesirable to try to specify rigid criteria. In general, however, each candidate with an R or I appointment at any level is expected to maintain a vigorous research program, yielding refereed papers published in reputable scientific journals on a regular basis. In cases where teaching, service, or instrument development represent a substantial portion of the candidate's effort, consideration will be taken of his or her commitment of less than full time to research, but it seems very unlikely that promotion at any level would be recommended in the absence of at least a few substantial published papers. Candidates are also normally expected to have performed substantial service to the Institute through contribution to some communal efforts. In addition, almost all candidates will have contributed to the instructional program either through classroom teaching or by providing research guidance to undergraduate or graduate students.

Candidates with S appointments will normally have primary responsibility in research support, such as development and maintenance of instrumentation and computer software. They may also have substantial supervisory responsibilities. These candidates should be judged primarily on the quality and quantity of these activities, using professional standards appropriate to their areas of expertise, although evidence of participation in

research at a significant level will also normally be expected. Candidates with S appointments may be less well known outside the IfA than those with R appointments, but it is still expected that S candidates will interact professionally with the national community of their peers, and that at the Rank 5 level they will have achieved recognized leadership in their field.

Evidence for professional growth is also a prerequisite for promotion. Accordingly, the candidate's research will be examined for evidence of increasing diversification, scope of investigation, independence of research ideas, sophistication of technique, and depth and breadth of scholarship. Comparison of performance will be made with staff members at peer institutions on the mainland in an endeavor to maintain appropriate standards of excellence.

This section describes briefly the standards for promotion to Rank 4 (associate level) and Rank 5 (full professor or astronomer) and for granting of tenure. Specific guidelines for evaluation of research, teaching and service are given in Sections VII through IX

The review process is essentially conservative. Unless there is a clear case for promotion or tenure, the practice is not to provide a positive recommendation.

C. Criteria for Promotion to Rank 4

The faculty member must demonstrate a level of research achievement and productivity that reflects his or her stature as an <u>established researcher</u> in comparison with peers active in the same area of research. The comparison peer group consists not only of departmental colleagues, but the whole community of researchers active at major research centers. Publication in a form that involves review by independent referees is of first importance in establishing research achievement. The faculty member must provide evidence of ability to plan and organize research activities, including effective interactions with students and assistants as appropriate. The faculty member should have shown a willingness to use his or her professional expertise in the service of the profession and the general community, and in most cases should have made contributions to the IfA in teaching and service.

D. Criteria for Promotion to Rank 5

A necessary condition for promotion to Rank 5 is that the candidate be recognized as an <u>authority</u> in his or her field and be recognized to have made substantial contributions to it. The candidate's work must be widely known and respected within the astronomical community. The faculty member must demonstrate a level of research achievement and productivity that establishes his or her stature as among the leaders in the research area. This leadership position is not only with respect to departmental colleagues, but the whole community of researchers active at major research centers. In evaluating candidates for promotion to this level, high weight should be given to letters of recommendation from leaders in his or her area of research and to evidence that his or her work is having a broad professional impact. The FPC will look for evidence that the candidate has developed considerable breadth and depth in research interests. Although a scientist today must specialize in rather confined fields, a mature scientist should possess an appreciation of how his or her particular area of endeavor interacts with those of others.

The faculty member must provide evidence of successful planning, organization, and supervision of research activities, including effective interaction with students, associates, and assistants as appropriate. The faculty member should have shown a willingness to use his or her professional expertise in the service of the profession and the general community. He or she should also have accepted and capably executed responsibilities in teaching and service at the IfA and within the University.

E. Criteria for Tenure

The candidate must give evidence of both past research productivity and the promise of future growth. It should seem probable that the candidate <u>will become an authority in his or her field and will eventually qualify for promotion to Rank 5</u>. Quality and quantity of research are both important; detailed criteria for judging quality are given in Section VII.

The candidate must be judged likely to continue to be a valuable member of the Institute faculty on the following bases: (a) his or her field of research must be compatible with the program and the facilities of the Institute; (b) the candidate must be deemed capable of contributing to the enhancement of the scientific productivity and reputation of the Institute either through research, or, in exceptional cases, through service that facilitates the research of other members of the Institute; and (c) the candidate must willingly participate in committee work, teaching, and other service activities within the Institute.

The candidate must show a willingness to interact with other faculty members and students through collaboration, staff seminars, and informal discussion of his or her research and that of others.

The candidate must exercise broad professional responsibility by such means as interacting with students, providing service on committees and other appropriate means to the University at large, bringing the results of astronomical research to the public through lectures, popular articles, etc., when such opportunities arise; and participating in the work of professional societies.

The primary activities to be considered in evaluating personnel are summarized in Sections VII through IX. The relative weight given to each activity will depend upon the current needs and priorities of the Institute, the conditions of the candidate's appointment, and the candidate's submitted statement. However, a candidate with an R or I appointment is expected to have spent at least 50 percent of his or her time in research activities. If a substantial fraction of a candidate's time has been spent in service or teaching, it is understood that the quantity of his or her research work is likely to be decreased, but in no case should such non-research activities excuse a lack of quality in the research being evaluated. For a candidate with an S appointment, other professional activities may be considered in place of direct research output.

VII. CRITERIA FOR EVALUATING RESEARCH

A. Evidence Considered

Listed below are the kinds of evidence considered in evaluating research. These lists are not meant to be complete, nor can any one person be expected to display excellence in all these areas.

These five items are the most important to consider (in no particular order of priority):

- Scientific papers representing original research, published in reputable refereed journals.
- Reviews, monographs, or other scientific or scholarly writing.
- Development of instruments or facilities for research.
- Administration and guidance of research projects or other contributions to cooperative scientific work, including interdisciplinary programs.
- Writing proposals and obtaining grants for scientific research.

These five items also warrant consideration:

- Presenting papers at scientific meetings and symposia.
- Organizing symposia or scientific meetings.
- Invitations to present papers or chair sessions at scientific meetings or to present colloquia at other institutions.
- Election or appointment to office in national or international scientific organizations.

B. Statement on Publishing

Publication is an important part of any research program because:

- 1. It is the best means for communicating new information.
- 2. It forces one to complete, to organize, to review, and to get a perspective on one's work.
- 3. It provides the best record of work done.
- 4. It exposes one's work to critical review by others and allows the quality of the work to be assessed.

The emphasis in evaluating research should be on the quality and significance of the work, not on the quantity (e.g., the number of papers published). Since quality and significance are usually more difficult to assess than quantity, criteria for evaluating these aspects of published research are summarized below.

C. Evaluation of Published Research

The kinds of evidence used to determine the quality and significance of published research include:

- 1. Acceptance of a paper by a reputable refereed journal.
- 2. The number of citations of the candidate's work by extramural authors. This record is to be compared with those of a peer group (in research field and number of years since Ph.D). Other metrics, such as the H index may also be used.
- 3. The external evaluations described in III.C above
- 4. The candidate's specific contribution in a multiple-authored paper.
- 5. The difficulty and duration of the work described.
- 6. Invitations to the candidate to write or present at meetings.
- 7. Opinions of members of the FPC upon studying a selection of the candidate's published papers

D. Difficult, High-Risk, and Incomplete Investigations

Some research projects are long-term by nature, while others may be particularly difficult or may involve high risk. Faculty members who wish to undertake such ventures should not be penalized for doing so. Nevertheless, such projects must be evaluated from time to time, whether or not they have resulted in publication. This can be done on the basis of the stated aims, the inherent interest, the apparent soundness of the approach, etc., using evidence of the types outlined in Part C, above. In addition, faculty members who undertake such long-term projects are usually expected to publish intermediate results or to carry on other research of shorter time scale leading to publication.

E. Contributions to Large Research Efforts

It is frequently appropriate for research astronomers to devote substantial time and effort to the development of instruments and facilities as a part of some larger program. Scientists who choose to spend a part of their time in such activities should not be penalized for doing so, as long as these instruments and facilities are innovative and the work is carried out to appropriate professional standards. However, scientists are also expected to carry on simultaneously some publishable research, and there should be no relaxation of the requirement that tenure be limited to those who have established, or appear likely to establish, themselves as authorities in their fields (noting, however, that astronomical instrumentation can be considered an appropriate "field").

VIII. CRITERIA FOR EVALUATING TEACHING

All IfA faculty members will normally be involved with the instructional program, with the exception of those who are employed on external funds. All are expected to perform their teaching duties with the same high level of competence and diligence that applies to their research activities. Any of the following will be classified as part of teaching and evaluated for accomplishments beyond this basic expectation. (It is understood that not every faculty member is required or expected to participate in all these activities.)

- 1. Teaching of undergraduate and graduate courses, including directed research and thesis research.
- 2. Development of new courses and laboratories.
- 3. Preparing new written or audio-visual teaching materials.
- 4. Developing new programs or approaches to teaching, including interdisciplinary programs.
- 5. Publishing books or articles on teaching methods, experiments, etc.

Listed below are the kinds of evidence considered in evaluating teaching:

- 1. The record of courses taught.
- 2. Self evaluation through written reports.
- 3. Student evaluation through questionnaires.
- 4. Colleague evaluation through classroom visitation.
- 5. Supervision of thesis research and other directed research.
- 6. Performance of students, particularly of research and thesis students.
- 7. Reports of colleagues who have been associated with the candidate in oral examinations, joint teaching programs or curriculum revision.
- 8. Reports of colleagues who have attended conferences, panel discussions, research seminars or colloquia, or public lectures in which the candidate was a participant.
- 9. Course plans, reading assignments, problem assignments, and lecture notes.

The faculty member in his or her teaching self-evaluation should indicate: (1) the goals of the course(s) he/she taught, (2) the means chosen to attain these goals, and (3) the degree of success achieved, as well as any evidence that

bears on this conclusion. In addition, he or she may wish to include other evaluation data such as course plans or lecture notes.

It is highly desirable that students participate in the teaching-evaluation process. In many instances, this can best be done through the standard Faculty-Course Evaluation, administered by the University's Academic Evaluation Officer. Arrangements for colleague evaluation, whether by classroom visitation or by some other means, can also be made through the Evaluation Officer.

Many teaching activities and certain types of courses cannot be readily evaluated using the standard questionnaire or a classroom visitation. In such cases, the faculty member can arrange for a more appropriate evaluation through the Personnel Committee. For example, an article on teaching methods may speak for itself, while the evaluation of a small graduate course might best be accomplished through colleague-student interviews.

In the case of supervision of graduate research, the accomplishments of students and their subsequent professional development are relevant.

Faculty members are encouraged to submit independent evaluation data to the FPC in support of personnel actions.

The weight given to teaching performance in assessing a candidate's strengths and weaknesses will, of course, depend on his or her degree of involvement in the teaching program, but the standards of excellence in teaching and criteria for judging performance will apply equally to all IfA faculty.

IX. CRITERIA FOR EVALUATING SERVICE

A. Types of Service

All faculty members are expected to contribute to the work of running the Institute and the University, and to contribute to the profession and the community. Service to the Institute and University may include serving on Institute and University committees, assisting in the running of the observatories and other facilities on the neighbor islands, and developing communal instrumentation for use in the Institute's laboratories or observatories.

Examples of kinds of service to be considered by the FPC are:

- 1. Service to the Institute, including serving on committees, helping with administrative work, and assumption of leadership and management responsibilities within the IfA.
- Service to the Institute and to the wider community through the management of observatories and other major facilities.
- 3. Service to the Institute through leadership and management of outreach, public information, and development activities.
- 4. Service to the University, such as holding elective or appointive positions or serving on College and University Committees.
- 5. Service to the community in the context of astronomy, such as giving popular lectures, judging student science fairs, or writing popular articles for students, amateurs, or the general public.
- 6. Service to local, national, or international scientific organizations.
- Service to federal agencies, such as NASA, NSF, and the National Academy of Sciences, through their advisory committees, working groups, or proposal evaluation committees.

B. Special Case of S Appointees

In the evaluation of candidates in the S category, assessment of service becomes of special importance. In these cases, primary weight should be given to creative, technically demanding, and important contributions to the IfA research effort, as exemplified by the design and construction of new instruments, software development, or the technical management of major facilities such as telescopes or computer systems. In assessing a candidate's performance in these areas, due consideration should be given to the technical challenge of the work and the innovative nature of the activity, including publication of results and participation in professional activities on the state and national levels.