

CMS-FNAL RA Mentoring Process

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Executive Summary of the Process

The CMS center at Fermilab has a mentoring process to insure that CMS Research Associates (RAs) are guided to the skills and achievements expected for a young physicist, and are coached to have the best chance possible to obtain a faculty or staff position in HEP. The basic **mentoring events** and **mentoring players** within the process are discussed in detail below. The process begins with a good start for the RA: a brief research plan, written by the RA, the supervisor and optional mentor, and then extensively reviewed and approved by a mentoring committee reporting to CMS center management. RAs share their ongoing research strategy annually with the CMS group at Fermilab via informal and friendly pizza meetings. The RA research strategy and timeline towards a position is discussed in detail during formal performance reviews. Supervisors are also guided, and present the status and research strategy of their RA annually to the mentoring committee. The RA rehearses to give professional presentations for conferences, seminars, and interviews. RAs are informed about conferences and nominated to give talks. RAs are also informed about jobs in HEP and encouraged to apply at the appropriate time, and the job packet of the candidate is extensively reviewed and refined before submission. The process requires the time and active participation of Fermilab scientists who play the important roles of supervisors, mentors, managers, and members of the RA mentoring committee. The process has been beneficial to the careers of CMS RAs, the functioning and cohesion of the CMS-FNAL group, and the reputation of Fermilab as a good institution for young physicists.

RA Mentoring Events

The following important events are a part of the RA mentoring process:

- **RA Research Plan:** One month after hiring, having thoroughly surveyed the opportunities available within the group, the RA submits a one page research plan to CMS-FNAL management including their preferred choice of supervisor, mentor and location (Fermilab or CERN). The plan is reviewed by the mentoring committee, management is advised, and the plan is either accepted or modified. The plan is intended to provide a “good start” on a balanced research strategy for the RA with an appropriate supervisor and optional mentor.
- **RA Reports at Pizza Meeting:** Once a year the RA reports briefly on their research strategy to the CMS-FNAL group in an informal monthly meeting where pizza is served. The report is focused on their planned and actual accomplishments leading them towards research success and their next job, not on details of the research. The RA discusses their major accomplishments in the areas of detector/operations, physics results, conference presentations, seminars,

publications and management positions. The postdoc receives support and guidance from senior scientists in the presence of their peers, as well as news about scientific jobs and conferences that they are encouraged to attend. The pizza meeting serves both a mentoring function and a social CMS-FNAL group building function. Scientists learn about postdocs they might otherwise not know well, and postdocs learn about each other.

- **RA Performance Reviews:** A representative of CMS center management is present at the official Fermilab performance review. The future plans and any guidance are agreed on between the supervisor/mentor and management prior to the review, and discussed with the RA during the review. During the future plans section of the review the RAs research strategy towards a permanent position is extensively discussed, including when and where to apply for a job.
- **Supervisor Presentations:** The RA mentoring committee and management receives annual presentations by supervisors and mentors on the progress of the RA, and the plans for when and where to apply for a permanent position. The committee advises management on any recommendations for the supervisor, mentor and RA.
- **RA Practice Talks:** Supervisors arrange practice talks for their RAs. Talks are announced to all scientists and attended by management and interested scientists who give extensive and detailed advice on how to give the best possible presentation.
- **Award Nominations:** Supervisors are made aware of awards and requested to nominate their postdocs for awards.
- **Job Application Package Review:** RAs are reminded by management and/or the committee when academic job season is starting, and given guidance on the right time in their career to apply for a job. Together with the supervisor, the CV, list of references, research statement, and job talk is reviewed by the management and/or the RA mentoring committee and the RA is advised. Job talks are practiced in front of the supervisor and interested scientists including members of management and the mentoring committee.

RA Mentoring Players

The following play a role in mentoring of the RA:

- **Management:** CMS center head, deputy head, associate head, and CMS department heads in PPD and SCD. CMS center management has ultimate responsibility for the RA. CMS management in PPD and SCD are responsible for the Fermilab scientists that supervise, mentor and work with the RA.
- **Supervisor:** The CMS center head is line manager, but delegates supervisor responsibilities to at least one designated CMS scientist. This supervisor is usually the leader of a detector/operations project and/or physics project featured in the RAs research plan. The supervisor's responsibility includes mentoring.
- **Mentor:** Following official Fermilab procedure, CMS RAs may choose to have a mentor who is a different person than the supervisor, to supplement the mentoring received from the supervisor.

- **RA Mentoring Committee:** The mentoring committee contains ten CMS scientists: six working and four ex –officio (CMS center head, CMS department heads in PPD and SCD, and the chairman of the RA Hiring Committee). The mentoring committee has the following tasks:
 - Provide guidance to supervisors and mentors: see “Guidelines for CMS-FNAL RA Supervisors and Mentors”.
 - Review the research plan of the RA and advise management, supervisor, mentor and RA.
 - Receive annual presentations from supervisors and mentors about the past and future research program of the RA. Advise the supervisors and management on the RAs research program
 - Review requests to extend RA appointment beyond three years and advise management.
 - Review requests to extend RA stays at CERN and advise management.
 - Keep lists of conferences and awards and notify supervisors.
 - Assist the supervisor, mentor, management and the RA in reviewing and refining the job application package of the RA.