

Mathematical Sciences Employment Center

*Hynes Convention Center, Boston, Massachusetts
January 4–7, 2012*

The Employment Center offers a convenient, safe, and practical meeting place for employers and applicants attending the Joint Meetings. The focus of the Employment Center is on Ph.D.-level mathematical scientists and those that seek to hire them from academia, business, and government.

Employment Center Web Services

New this year, the Employment Center information will be accessed through the Mathjobs.org system. For those who do not have existing Mathjobs.org accounts, it will be possible to set up special Employment Center accounts on Mathjobs.org. The website and all information will be available beginning in early October 2011, and will remain accessible through the period of the Employment Center. While some schools may delay appointment-setting until late December, virtually all scheduling will be done before travel takes place, so applicants should expect few or no further appointments after arrival. Registering on site, for applicants, serves no real purpose.

There will be no printed books or paper forms. Also, there will be no paper message center since the new electronic system allows for interview arrangements.



Computer scheduling is no longer provided at the Employment Center.

No Admittance Without a JMM Badge

All applicants and employers planning to enter the Employment Center—even just for one interview—must present a 2012 Joint Meeting Registration badge or they will be denied admittance. This is not a new policy, but it is now strictly enforced. Meeting badges are obtained by registering for the Joint Mathematics Meetings and paying a meeting registration fee. See the JMM website at: http://jointmathematicsmeetings.org/meetings/national/jmm2012/2138_intro for registration instructions and rates.

2012 Employment Center Schedule:

November 15, 2011—Suggested deadline for electronic forms submission to allow for advanced scheduling.

December 15, 2011—Advance registration deadline for JMM. Meeting badge will be required for admittance. After this date, meeting registration fees go up and meeting registration may only happen on site in Boston.

OPEN HOURS (NO access before opening time):

Wednesday, January 4, 2012—8:00 a.m.–6:00 p.m.

Thursday, January 5, 2012—8:00 a.m.–6:00 p.m.

Friday, January 6, 2012—8:00 a.m.–6:00 p.m.

Saturday, January 7, 2012—9:00 a.m.–12:00 noon.

Location: Exhibit Hall C, Hynes Convention Center, 900 Boylston St., Boston, Massachusetts

Do not schedule an interview to begin until 15 minutes after opening.

Note: When deciding on travel dates, keep in mind that employers may wish to conduct interviews on any of the days listed above.



Employers: Choose a Table

There are two table types available for employers, based on the number of interviewers who will be present at any one time:

- one or two interviewers per table in the “Quiet Area” (US\$285), additional table (US\$110).
- three to six interviewers per table in the “Committee Table” area (US\$365), additional table (US\$110).
- All Employment Center information is now housed on the [Mathjobs.org](http://www.Mathjobs.org) site. An existing account can be used for accessing Employment Center services and paying appropriate fees, or if no account exists, participants can start an account solely for Employment Center use.

Please note, individual registration for the JMM is also required for all interviews and no admittance is possible without a JMM badge.

Employers: How to Register

- Registration runs from early October 2011 through January 4, 2012, at the following website: www.Mathjobs.org. The suggested deadline is November 15 if possible.

- Use your existing [Mathjobs.org](http://www.Mathjobs.org) account or create a new Employer account at [Mathjobs.org](http://www.Mathjobs.org). Once a table is reserved, the ad can be placed at any time (or never) and will run until late January.

- Each person who will need to enter the Employment Center area must have a meeting badge (obtained by registering for the JMM and paying a meeting registration fee).

Once registered, employers will gain access to applicant data as it is submitted to the site. There will be applicant resumes on the site, but employers will want to notice especially the resumes marked “Employment Center” (EC logo). There is no automated scheduling system in [Mathjobs.org](http://www.Mathjobs.org), so participants will be making their own arrangements privately.

To display an ad on site, and use no Employment Center services at all, submit your one-page paper ad on site in

Boston to the Employment Center staff. There is no fee for this service.

For complete information, visit <http://www.ams.org/emp-reg/>.

Applicants: Making the Decision to Attend

- The Employment Center offers no guarantees of interviews or jobs. Hiring decisions are not made during or immediately following interviews. In the current job market, the ratio of applicants to employers is about 10:1, and many applicants go completely unnoticed.

- There will ordinarily be no research-oriented post-doctoral positions listed or discussed at the Employment Center.

- Interviews will go to applicants who applied to jobs during the fall and are now being sought out by the institutions for in-person meetings during the JMM.

- There will be no opportunity to speak to employers without a pre-arranged interview, and no walk-up job information tables.

In the current job market, the majority of Employment Center employers are academic departments of mathematical sciences seeking to meet a short list of applicants who applied for their open positions during the fall. Each year, a few government or industry employers are present. Often, they are seeking U.S. citizens only due to existing contracts.

All job postings and resumes are available on the website in advance, and now that this electronic service is in place, there is no other messaging conducted on paper.

Past attendees have pointed out that all interviews are arranged in advance, and there is no opportunity to make connections on site if it has not happened before the meeting. In a recent survey, fifty percent of applicants responding reported being invited for at least one on-campus visit to an employer they had interviewed with at the Employment Center. Please visit the Employment Center website

About the Cover

The magical Coxeter transformation

This month's cover was suggested by David Borthwick and Skip Garibaldi's article on the root system E_8 in this issue.

A finite Coxeter group is a subgroup of an orthogonal group $O(n)$ generated by reflections. Its fundamental domain is a simplicial cone cutting out a spherical simplex, and its transforms are called *chambers*. The set of reflections s_i in the n walls of one of these generate the group. Any product $s_{i_1} \dots s_{i_n}$ of distinct reflections is called a **Coxeter transformation**, and its conjugacy class is independent of the order in which the product is taken. The order h of any of these is called the **Coxeter number** of the group. The Coxeter plane in \mathbb{R}^n is one on which a given Coxeter transformation acts by rotation through $2\pi/h$. The cover illustrates how this works for the isometry group of the icosahedron, for which $h=10$. The colored triangles illustrate how the action of a Coxeter transformation on certain equatorial chambers, tracking along what Coxeter called a Petrie polygon of the icosahedron. The chambers of a given color form the orbit of the transformation.

The Weyl group of any integral root system is a Coxeter group, and Borthwick and Garibaldi's article explains how the lengths of the projection of roots onto a Coxeter plane is related to both the masses of a certain physical system as well as the eigenvectors of the Cartan matrix of the system. To an arbitrary Coxeter group is associated a set of roots equal to the normalized perpendiculars to chamber walls. A Coxeter transformation acts simply on the roots. For the icosahedron there are 30 roots and therefore 3 orbits, which project to three circles in the cover figure. The associated Cartan matrix is $(\langle \alpha_i, \alpha_j \rangle)$, where α_i gives rise to s_i . As far as I can tell the literature does not point out that the relation between the root projection lengths and the Cartan matrix is valid for non-crystallographic groups, but it can be experimentally verified for the exceptional groups H_3 and H_4 .

Properties of Coxeter transformation are well known, but they are still capable of offering surprises. They do not seem yet to be perfectly understood.

—Bill Casselman
Graphics Editor
(notices-covers@ams.org)



for further advice, information, and program updates at www.ams.org/emp-reg/.

Applicants: How to Register

- Early registration is vital since most employers will finalize schedules before arriving in Boston.
- Register for the JMM by completing a meeting registration form and paying a meeting registration fee. No admittance without a meeting badge.
- Create an Applicant account on the Employment Center by using your Mathjobs.org account. Review job ads with the "EC" logo, upload documents, and apply for jobs.

There are no Employment Center fees for applicants; however, admission to the Employment Center room requires a 2012 JMM badge, obtainable by registering (and paying a fee) for the Joint Mathematics Meetings. To register for the meeting, go to http://jointmathematicsm meetings.org/meetings/national/jmm2012/2138_intro.

It is possible to attend one or more privately arranged interviews without official Employment Center registration, however, a meeting badge is required to access the interview room.

For complete information, visit <http://www.ams.org/emp-reg/>.

Questions about the Employment Center registration and participation can be directed to Steve Ferrucci, AMS Membership and Programs Department, at 800-321-4267, ext. 4113, or by e-mail to emp-info@ams.org.