



Position Vacancy in the Acoustics Research Institute

Two Post-Doc Research Assistants for the project *Frames and Linear Operators for Acoustical Modeling and Parameter Estimation* (FLAME)

Vienna, 2012-01-11

The Acoustics Research Institute of the Austrian Academy of Sciences is seeking to fill two full-time research positions for the *START-Price Project Frames and Linear Operators for Acoustical Modeling and Parameter Estimation* (FLAME) starting in May 2012.

The Acoustics Research Institute (ARI) is an interdisciplinary research institution of the Austrian Academy of Sciences. A multidisciplinary approach is necessary for frontier research in acoustics. ARI conducts top-level research in psychoacoustics and experimental audiology; acoustics phonetics; computational acoustics; and mathematics and signal processing. The close interaction between the working groups at the institute allows innovative research approaches based on the synergy effects of multidisciplinary research as well as concepts that stimulate the individual research fields. ARI employs approximately 20 staff members and is directed by Dr. Peter Balazs.

The *START-Program* funded by the *Austrian Science Fund* (FWF) is the most reputable Austrian research price for outstanding young researchers granted by an international jury for duration of six years.

The multidisciplinary project FLAME¹ has the main goal of establishing frame theory as the theoretical backbone of acoustical modeling. Signal processing tools and algorithms form the backbone of important technologies. Many signal processing algorithms have been adapted for applications in audio and acoustics, also taking into account the properties of the human auditory system.

The mathematical concept of frames describes a theoretical background for signal processing. Frames are generalizations of orthonormal bases that give more freedom for the analysis and

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modification of information, however, this concept is still not firmly rooted in applied research. The link between the mathematical frame theory, the signal processing algorithms, their implementations and finally acoustical applications is a very promising, synergetic combination of research in different fields. This is a cooperative project both with other working groups at ARI, national and international partners.

We are hiring two Post-Doc Research Assistants who will be incorporated in the 'Mathematics and Signal Processing in Acoustics' Group and will work together with the other members under the guidance of Dr. Peter Balazs. They will also work closely with the other working groups of ARI in a multidisciplinary research context.

This is a research position, no teaching duties are involved.

Applicants are required to show:

- a PhD or an equivalent education in a relevant scientific discipline.
- experience in a least one of the topics and openness to the others:
 - frame theory,
 - operator theory,
 - Gabor and wavelet theory,
 - time-frequency signal processing,
 - numerics of integral equations,
 - phonetics,
 - psychoacoustics, and
 - acoustical measurement theory.
- a good publication record.
- the ability to carry out research work independently as well as cooperatively.
- the desire to travel and work in an international cooperative project.

Applicants should have:

- at least two years of post-doctoral experience.
- a multidisciplinary publication record in the involved fields.
- experience in at least three of the above mentioned fields.

These full-time positions are available from 1 May 2012 and will be offered for a year (in exceptional cases a later start is possible). Given a successful cooperation with the group and the project it will be

prolonged by two years (until 30. April 2015). After a successful evaluation of the START-project by the FWF and an excellent fit to the working group and ARI the contract will be prolonged for another three years (until 30. April 2018). It is the explicit plan to build up a long-term team for the 'Mathematics and Signal processing in Acoustics' group. The Austrian Academy of Sciences is currently implementing a *tenure-track* career plan in the near future. It is very possible that these positions can be considered to be within this plan, once this option exists.

This project offers the unique possibility to conduct application-oriented mathematics research in close cooperation with different applied research disciplines as well as established researchers from various research fields (within and outside ARI). It offers the possibility to conduct ground breaking interdisciplinary research in a cooperative research environment. The gross salary will be EUR 47,345.20 per year according the personal cost rates of the FWF for Post-Doc positions.

Applicants should submit a letter of application (expressing their particular fitting to this position. and interest in the project), their curriculum vitae, a list of 5 to 10 most important publications (with short summaries), a full publication list, and three references with contact data until the 11th of March to:

Institut für Schallforschung (Acoustics Research Institute)
Wohllebengasse 12-14,
1040 Vienna,
Austria

or per e-mail to: peter.balazs@oeaw.ac.at

The Austrian Academy of Sciences is an equal-opportunity employer, women and minorities are encouraged to apply.

After an initial ranking for the three top candidates for each position recommendation letters will be asked for. They will have to be provided until end of march. They will be used for a final ranking, when the first ranked candidates will be invited for a presentation.