**فرم درخواست شرکت در کارگاه آموزشی**

**"ابزارگذاری و مشخصه‌یابی باریکه"**

**"Beam Instrumentation and Diagnostics"**

**9-7 آبان سال 1391**

**28-30 October 2012**

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| اطلاعات شخصی (لطفا بالای خطوط اطلاعات را بنویسید) |
| نام خانوادگی |  | نام |
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| تاریخ تولد |  | شماره تماس |
|  |  |  |
| آدرس |  | زمینه کاری |
|  |  |  |
| وضعیت فعلی(شاغل/دانشجو) |  |
| آدرس ایمیل |  | در صورت شاغل بودن آدرس محل کار |
|  |
| اطلاعات تحصیلی (لطفا بالای خطوط اطلاعات را بنویسید) |
| رشته تحصیلی مقطع کارشناسی |  | تاریخ شروع- پایان مقطع کارشناسی |
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| تاریخ شروع- پایان مقطع کارشناسی ارشد |  | دانشگاه مقطع کارشناسی |
| دانشگاه مقطع کارشناسی ارشد |  | رشته تحصیلی مقطع کارشناسی ارشد |
| رشته تحصیلی مقطع دکتری |  | تاریخ شروع-پایان مقطع دکتری |
|  |  | دانشگاه مقطع دکتری |
| اطلاعات تکمیلی |
|  |
| تسلط به زبان انگلیسی  |  | میزان آشنایی با تکنیک های مشخصه‌یابی باریکه در شتابگرها |
| فعالیت های مرتبط با شتابگر که تاکنون داشته اید: |
| لطفا انگیزه خود را از شرکت در این کارگاه در 3 خط به طور مختصر بنویسید: |

**پس از تکمیل فرم، حداکثر تا 30 شهریور 1391 آن را به نشانی users.ilsf@ipm.ir بفرستید.**

**برای اطلاعات بیشتر درباره‌ی تغییرات احتمالی در برنامه، به وبگاه طرح <http://ilsf.ipm.ac.ir> مراجعه کنید.**

**Beam Instrumentation and Diagnostics Course**

**by Peter Forck, GSI, Darmstadt, Germany**

The course gives an overview of the most frequently used beam diagnostics instruments at electron and proton accelerators, both for LINACs and synchrotrons. This covers a wide range of devices based on different physical principles. The device design and their applications for their usage during regular operation and dedicated accelerator physics investigation are discussed.

The outline of the talk is orientated on the beam quantities:

1. Beam current measurements are performed by transformers, Faraday cups and particle detectors.

2. Beam profile measurements are performed by various methods, like scintillators screens, SEM-grids, wire scanners, residual gas monitors and synchrotron radiation monitors.

3. Transverse emittance measurements use destructive devices or reconstruction by quadrupole magnet variation.

4. The principle of rf-based Beam Position Monitors (BPM) for beam position measurements is discussed. These BPM are used for position as well as tune or further lattice function determinations at synchrotrons. Moreover, BPM are a part of a feedback system used for beam stabilization.

5. Longitudinal measurements of momentum spread and bunch structure using picks-ups, particle detectors or synchrotron radiation is discussed. Moreover, short bunch determination by electro-optical methods is covered.

6. Beam loss detection for beam alignment and machine protection.

The principles and application of these instruments are discussed.

**Prerequisites:** A good knowledge of general physics is required, as well as basics in accelerator realization and operation. The first year university mathematics is presumed, including matrix calculus, Fourier transformation and complex numbers. Only basic knowledge of detector physics, high frequency technologies and electronics is needed, more complex devices will be discussed. Most important is a high level of interest in accelerator science and application.