# The Beams and Applications Seminar Series

# Independent Component Analysis for Beam Measurements

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## Indiana University

## Bldg. 401, Room B2100
## Friday, June 5th, 1:30 pm

Host: Wei Gai, HEP

The independent component analysis (ICA) has been used for data mining in many branches of science. In beam physics, ICA can be applied to analyze turn-by-turn beam position monitor (BPM) data of beam motion. The narrow-band filtering of ICA provides us an accurate method to identify and extract information on the linear betatron and synchrotron motion, effects of wake fields, nonlinear elements in accelerators, and other sources of perturbation. Numerical simulations are used to demonstrate the ability to obtain sextupole strengths at high precision. The method can be extended to other higher order multipoles.

**For more information visit**
http://aps.anl.gov/News/Meetings/Beams_and_Applications_Seminars/

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(mnolasco@aps.anl.gov, 630-252-6159) to arrange for a gate pass.