

# NYC Dynamics Seminar at CUNY & Yeshiva University

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**Maciej Capinski** (AGH University of Science and  
Technology, Krakow, Poland)

*will speak on*

## **Beyond the Melnikov method: a computer assisted approaches**

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**Friday, September 16, 2-3pm**

Lectures will last 1 hour and be followed by questions and/or discussion.

**CUNY Graduate Center, 365 Fifth Avenue, Room 5417**

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*Abstract:*

We present a Melnikov type approach for establishing transversal intersections of stable/unstable manifolds of perturbed normally hyperbolic invariant manifolds. In our approach, we do not need to know the explicit formulas for the homoclinic orbits prior to the perturbation. We also do not need to compute any integrals along such homoclinics. All needed bounds are established using rigorous computer assisted numerics. Lastly, and most importantly, the method establishes intersections for an explicit range of parameters, and not only for perturbations that are 'small enough', as is the case in the classical Melnikov approach.