

## Complex Dynamics in Cold Gases

Mon, 2015-05-11 11:59 - [Mattia Giardini](#) [1] **Website:**  
<http://www.pks.mpg.de/mpi-doc/pohlgruppe/> [2]

**Research Type:** Theory

When atoms are cooled down to temperatures of a few mK and, at the same time, are excited to high-lying internal states the typical order of time and energy scales is turned upside down. Random, thermal motion is overruled by the collective dance of (quasi)particles, governed by their strong interactions and correlations.

Such exotic types of matter are produced in several laboratories and often appear in very different states, ranging from fully-ionized ultracold plasmas to so-called frozen Rydberg gases.

We aim at gaining theoretical insights into the often complex dynamics of such gases. One of our objectives is to exploit this understanding for a selective manipulation and control of the system dynamics.

Our research is driven by computational as well as theoretical approaches and also benefits greatly from close collaborations with leading experimental groups in the field.

**Leader:** Prof. Thomas Pohl

### Location

Max-Planck-Institute for the Physics of Complex Systems    Noethnitzer Str. 38  
Dresden D-01187 Germany  
51° 1' 35.7636" N, 13° 42' 32.6448" E  
See map: [Google Maps](#) [3]

- [RySQ](#) [4]

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### Links:

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[2] <http://www.pks.mpg.de/mpi-doc/pohlgruppe/>

[3] <http://maps.google.com?q=Noethnitzer+Str.+38+%2C+D-01187+%2C+Dresden%2C+de>

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