The 885th IMS colloquium

Hot Rydberg Atoms

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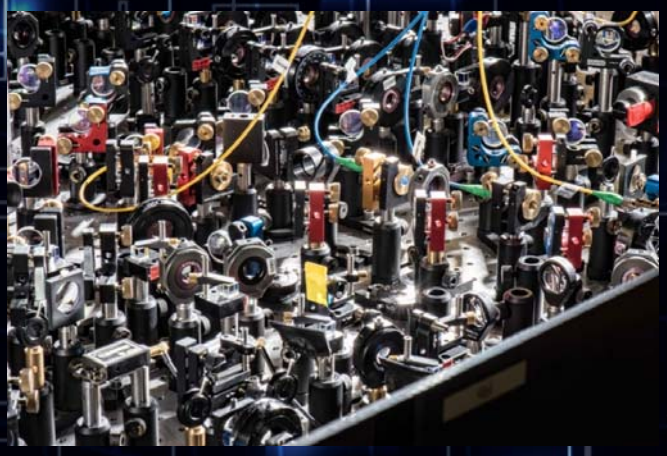
Date&Time: 2016/3/1 (Tue.) 17:00-
Place: IMS Research Building Room 201

The exceptional large polarizability of highly excited Rydberg states can be exploited in manifold ways in spectroscopy, quantum optics and many body quantum physics. Most experiments on interacting Rydberg atoms in the last decade have been carried out with ultracold gases. But when it comes to real world applications it is desirable to use thermal vapours instead of ultracold gases. With the help of pulsed lasers, specialized vapour cells and novel detection methods it is also possible to observe many interesting Rybderg induced phenomena also at room temperature such as electro-optical effects, van-der-Waals interaction, aggregation dynamics, optical bistabilities and many more. In this talk I will give an overview over our experiments on hot Rydberg atoms in various vapour cells, like micro-cells, hollow core fibres and electrically contacted cells, just to name a few. In the end I will give an outlook on potential applications in quantum optics and quantum enhanced sensing mediated by Rydberg atoms.



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