

## News from the Amsterdam strontium quantum gas group

*mardi 23 février 2016 10:20 (30 minutes)*

I'll report on two research lines centered around ultracold strontium.

The first research line has the goal to produce a quantum gas of RbSr ground-state molecules. We have created a  $^{84}\text{Sr}$ - $^{87}\text{Rb}$  Mott insulator and investigated STIRAP molecule association on the  $^1\text{S}_0$ - $^3\text{P}_1$  intercombination line. We found only very weak transitions between free atoms and optically excited molecules, hindering us to coherently create molecules. Using mass-scaling, our spectroscopy data points to a much more promising STIRAP molecule association path in  $^{87}\text{Sr}$ - $^{87}\text{Rb}$  mixtures. Furthermore, we have developed a STIRAP light-shift compensation method that has allowed us to coherently create  $\text{Sr}_2$  molecules with more than 80 % efficiency, up from 30 % reached previously.

The second research line has the goal to create a perpetual atom laser. I'll describe our approach and show first ultracold atom signals from a new machine dedicated to this research line.

**Auteur principal:** Prof. SCHRECK, Florian (Institute of Physics, University of Amsterdam)

**Co-auteurs:** M. CIAMEI, Alessio (Institute of Physics, University of Amsterdam); M. BAYERLE, Alex (Institute of Physics, University of Amsterdam); Dr PASQUIOU, Benjamin (Institute of Physics, University of Amsterdam); M. CHEN, Chun-Chia (Institute of Physics, University of Amsterdam); M. KURLOV, Denis (Institute of Physics, University of Amsterdam); Dr SIVILOGLOU, Georgios (Institute of Physics, University of Amsterdam); Mme DUTTA-MAZUMDAR, Namrata (Institute of Physics, University of Amsterdam); M. ONISHCHENKO, Oleksiy (Institute of Physics, University of Amsterdam); M. PYATCHENKOV, Sergey (Institute of Physics, University of Amsterdam); M. BENNETTS, Shayne (Institute of Physics, University of Amsterdam); M. VAN LEENT, Tim (Institute of Physics, University of Amsterdam); M. BARBÉ, Vincent (Institute of Physics, University of Amsterdam)

**Orateur:** Prof. SCHRECK, Florian (Institute of Physics, University of Amsterdam)

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