

THE PHYSICS COLLOQUIUM

Thursday, 13 October 2022, 4:00 p.m.
Nijenborgh 4, **Schröderzaal 5115.0317**

Parity violation effects in chiral molecules

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The Standard Model of particle physics states that the laws of nature are not symmetric under parity operations and that, in particular, a lack of symmetry appears in physical phenomena affected by nuclear-weak forces.[1]

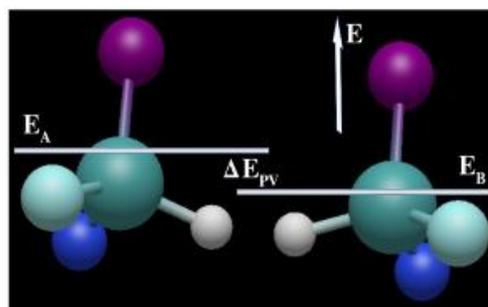
Some parity violation (PV) effects are predicted to appear in atomic and molecular systems[2], but even if they have been experimentally detected in atoms, they have never been detected unambiguously in molecules.

In this talk, I will present an overview of our recent work on understanding these effects on two molecular properties, the nuclear spin-rotation and the NMR nuclear magnetic shielding constants[3].

[1] Safronova et al., *Rev. Mod. Phys.* **90**, 025008 (2018).

[2] Bouchiat, *Il Nuovo Cimento C* **35**, 78 (2012).

[3] Aucar et al., *Phys. Rev. A*, in evaluation process, arXiv:2208.05458 (2022).



Parity violation effects are predicted to produce an energy split between the two enantiomers of a chiral molecule.

Join us for coffee starting 3:30 p.m. Refreshments will be served after the lecture.

For more information contact the host: Anastasia Borschevsky (a.borschevsky@rug.nl)

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