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## Probing P,T-violation with molecules in high charge states

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Polar molecular ions in extreme charge states have the potential to merge advantages that highly-charged *atomic ions* and neutral *polar molecules* offer, when performing precision tests of fundamental physics. As we have discussed in Ref. [1], one can expect to benefit from enhanced relativistic effects and compressed level structures on the one hand and large internal fields with considerable enhancements of *P,T*-odd effects on the other hand in specifically tailored molecular ions.

In this talk, general trends in the stability of highly-charged molecules are outlined, level structures and their dependence on the charge state in iso-electronic sequences of diatomic molecules [2] are presented and sensitivities to various sources that induce a violation of parity (*P*) and time-reversal (*T*) symmetry are discussed.

[1] C. Z252;lch, K. Gaul, S. M. Giesen, R.F. Garcia Ruiz, R. Berger, *arXiv:2203.10333*.

[2] C. Z252;lch, K. Gaul, R. Berger, *Isr. J. Chem.*, **63** (2023) e202300035.

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