

## P04

### Chemical Zeno effects on chemically induced dynamic nuclear polarization and magnetic isotope effect

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The quantum Zeno effect is usually formulated as the slowing of the evolution of quantum systems due to frequent measurements [1]. Process of spin selective recombination of radical pairs and other selective irreversible processes have been shown [2] to be similar to the process of quantum measurement. Both processes are described by projection operators on the elected state. The influence of the spin selectivity on the rate of singlet triplet conversion (quantum evolution) and the yield of the products of recombination was called "Chemical Zeno effect" (CZE). Moreover, CZE as can change the character of the spin evolution qualitatively: nonoscillating conversion appears together with the oscillating one. As the result CZE can affect on Chemically Induced Dynamic Nuclear Polarization (CIDNP) and Magnetic Isotope Effect (MIE). CZE was found can decrease the MIE coefficient  $\alpha$  in reaction with high values of recombination constant.

#### **References**

- [1] B. Misra and E.C.G. Sudarshan, J. Math. Phys. 18, 756 (1977)
- [2] I. I. Yakunin and V. L. Berdinskii, Dokl. Akad. Nauk **421**, 69 (2008)