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Rotochemical heating in hybrid stars

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The spin-down of a compact star causes perturbations in the internal chemical equilibrium state, and, consequently internal heating dubbed as rotochemical heating.
Moreover, the fact that the cores of compact stars are thought to reach baryon densities as high as a few times the nuclear saturation density, renders them ideal
candidates of being host to deconfined quark matter, the latter implying the existence of hypothetical objects such as hybrid stars and quark stars. We study the
effect of this heating mechanism on the thermal evolution of millisecond pulsars with quark core, considering that both phases, i.e. hadron and quark matter,
departured from beta equilibrium. The main emphasis is given to the impact of deconfinement phase transition on the rotochemical heating.

Primary author: Mr PANASIUK, Pavlo (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine)

Co-authors: HAMAGUCHI, Koichi (Department of Physics, University of Tokyo, Tokyo, Japan); NAGATA, Natsumi (Department of Physics, University of Tokyo, Tokyo, Japan/Kavli Institute for the Physics and Mathematics of the Universe (Kavli IPMU), University of Tokyo, Kashiwa, Japan); SAGUN, Violetta (CFisUC, University of Coimbra, Coimbra, Portugal)

Presenter: Mr PANASIUK, Pavlo (Taras Shevchenko National University of Kyiv, Kyiv, Ukraine)

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