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Title : Timing of spider pulsars: what can we learn ?

Spider pulsars are composed of a millisecond pulsar (MSP) and a low-mass companion, forming the so-called black widows (companion mass $M_c < 0.1M_{\text{sol}}$) and redbacks ($M_c > 0.1M_{\text{sol}}$). As MSPs these pulsars are privileged targets for precision timing and possibly timing arrays, but the complex interaction with their companion is still poorly understood and renders their behaviour virtually unpredictable by current models. Indeed multiple spider pulsars are known to display significant orbital variability on months/years timescale which has long been suspected to be connected to the Applegate mechanism.

In this talk we will quickly review the physical ingredients at play in these binaries, discuss the physical meaning of the timing models used to follow these pulsars, and propose an extension in order to extract new observables such as the (bulk) quadrupole moment of the companion star, thus, walking a step further towards predictable spider timing.

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