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"Population synthesis of isolated neutron stars"

In this lecture I give a review of population synthesis of isolated neutron stars. Lecture is divided into three parts.

I. Introduction. Astrophysics of neutron stars. Main initial parameters and evolutionary stages. Evolution of neutron stars.

II. Population synthesis of old isolated neutron stars in the Galaxy. Elusiveness of old neutron stars.

III. Young close-by neutron stars. Age-distance diagram. The role of the Gould Belt.

In the first part I give a brief introduction.

I discuss main initial parameters of NSs (masses, velocities, spin periods, magnetic fields) and possible correlations between them.

Different evolutionary stages (Ejector, Propeller, Accretor, Georotator) are briefly discussed.

In the second part I present results of population synthesis of old neutron stars in our Galaxy. Special attention is paid to low number of old accreting isolated NSs.

Finally, in the third part I present our recent results on population of close-by young NSs. An Age-Distance diagram is introduced and discussed.