The distributions of isolated pulsar periods and magnetic fields

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Using our population synthesis code [1] for isolated neutron stars we modeled the distributions of pulsar periods P, period derivatives $\dot{P}$, and pulsar magnetic fields B in the modern epoch. We started modeling with our code from the birth of massive OB stars and followed their motion within the spiral arms to the point of supernova explosion. Next we considered the evolution of neutron stars up to the death line together with considering the magnetic field decay. Obtained distribution appeares to be in a good agreement with those taken from [2] catalog. The shape and the width of theIr magnetic field distribution seems to be close to that for masive OB stars. The mass distribution of the compact remnants of the supernova explosions was also investigated.

References

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