

Quark Deconfinement in Long Gamma-Ray Bursts

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Summary

The late time activity observed after the prompt emission of several Gamma-Ray Bursts (GRBs) can be explained, in the context of the millisecond magnetar model, as the imprint of the energy injection from a newly born strongly magnetized Neutron Star in the form of a relativistic magnetically driven wind. Within this picture, however, it is not easy to reactivate the inner engine and therefore to describe late time bursts which are often found in the light curve of many long GRBs. Among the possible explanations it has been suggested that these events could be associated with the process of quark deconfinement.

We will present here a study of the timescales and the energetic properties expected for such events based on the numerical modelization of the quasi-stationary spin-down evolution for both Hadron and Quark stars. We will show how our results can be applied to the specific case of the double burst GRB 110709B.

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