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Understanding prompt emission: where do we stand ?

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In recent years, there is a renewed debate about the origin of the observed prompt emission signal. Some authors found that synchrotron emission can dominate the spectra of several long bursts, and a recent analysis show that it may be possible to overcome the famous 'line of death' argument by a direct fitting procedure. On the other hand, several recent works showed that non-dissipative photosphere is preferred as the dominant emission model in at least 1/4 of long and 1/3 of short GRB population. In this talk I will critically review the arguments given as well as their physical consequences. I will then present some recent results that show a connection between the prompt spectra and the early afterglow emission, thereby argue for an independent method of discriminating the physical conditions that result in the different dominant radiative processes.

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