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Subphotospheric dissipation evaluated using joint Fermi-Swift observations

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Although the origin of gamma-ray burst (GRB) prompt emission remains an unsolved problem, progress is being made by the advent of better analysis tools and as the state of our physical models improve. It is becoming increasingly clear that the difficulties of consistently reconciling empirical models with any underlying physical processes means that we have much to gain from directly fitting physical models. Two of the main scenarios under consideration are optically thin synchrotron radiation and photospheric models based on the Comptonisation of thermal photons. In this presentation I describe my work on fitting a physical model for a particular scenario of subphotospheric dissipation to *Fermi* GRB data. I outline the physical scenario under consideration, as well as the relevant analysis tools. Additionally, I discuss goodness of fit and the issue of having multiple models that can seemingly adequately describe the observed data. Specifically, I show how we can use data outside of the *Fermi* energy range, such as *Swift*-XRT data, to help discriminate between different physical models

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