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Photoinduced Memory Effects in Polymer Field Effect transistors K.S. NARAYAN, JNCASR, Bangalore, SOUMYA DUTTA, JNCASR — Polymer field effect transistors (FETs) exhibit several interesting features upon photoexcitation.[1] The large change in conductance upon exposing to light is accompanied by a slow relaxation upon terminating the photoexcitation and this feature was explained on the basis of serial relaxation process due to a hierarchy of the systems with spatial separation of the photogenerated electrons and holes.[2] The inherent slow dynamics of the photogenerated carriers in such configuration were exploited to observe the memory effect with repeated write, read, store and erase functions by using the appropriate combination of light and gate voltage.[3] We report and discuss these effects based on spectroscopic signatures of the FET in the different states.

1. K. S. Narayan and N. Kumar, Appl. Phys. Lett. 79, 1891 (2001).
2. S. Dutta and K. S. Narayan, Phys. Rev. B 68, 125208 (2003).
3. S. Dutta and K. S. Narayan (to appear in Advanced Materials 2004).

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