Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

**Magnetoresistance in bulk heterojunction solar cells** RONALD OESTERBACKA, Abo Akademi University, SAYANI MAJUMDAR, University of Turku, HIMADRI MAJUMDAR, HARRI AARNIO, Abo Akademi University, REINO LAIHO, University of Turku — The magnetoresistance (MR) response of the poly(3-hexyl thiophene) and poly(3-hexyl thiophene):1-(3-methoxycarbonyl) propyl-1-phenyl-[6,6]-methanofullerene (PHT:PCBM) based bulk heterojunction solar cells have been studied. Positive MR was always observed at room temperature in both the devices. In both cases the magnitude of the MR signal decreases at lower temperature and shows positive to negative sign inversion at 100K for the solar cells and at 200K for P3HT. The detailed voltage and temperature dependence of MR will be presented which will give important insight of the magnetic field effect on the bulk carrier mobility in the organic solar cells. We have observed tendency of retaining magnetic history in both the devices and it has been studied.

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Date submitted: 18 Dec 2007 Electronic form version 1.4