Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Solution Processable Electrochemiluminescent Ion Gels for Flexible, Low Voltage, Emissive Displays on Plastic HONG CHUL MOON, TIMOTHY P. LODGE, C. DANIEL FRISBIE, Univ of Minn - Minneapolis — We have expanded the functionality of ion gels and successfully demonstrated low voltage, flexible electrochemiluminescent (ECL) devices using patterned ECL gels. An ECL device composed of only an emissive gel and two electrodes was fabricated on an ITO-coated substrate by solution casting the ECL gel and brush-painting the top silver electrode. The device turned on at an AC voltage as low as 2.6 V (-1.3 V $\sim +1.3$ V) and showed a relatively rapid response (sub-ms). Also, we varied the mechanical properties of the ECL gel simply by substituting polystyrene-block-poly(methyl methacrylate)-block-polystyrene (SMS) with commercially available poly(vinylidene fluoride-co-hexafluoropropylene) (P(VDF-co-HFP)), enabling the fabrication of flexible ECL devices on any target substrate by the "cut-and-stick" strategy. This simple, rubbery ECL gel should be attractive for flexible electronics applications such as displays on packaging.

Hong Chul Moon
Univ of Minn - Minneapolis

Date submitted: 09 Nov 2013 Electronic form version 1.4