ΠΑΝΕΠΙΣΤΗΜΙΟ ΙΩΑΝΝΙΝΩΝ

**ΣΧΟΛΗ ΘΕΤΙΚΩΝ ΕΠΙΣΤΗΜΩΝ**

**ΤΜΗΜΑ ΦΥΣΙΚΗΣ**

**ΕΚΤΑΚΤΗ ΟΜΙΛΙΑ**

**ΤΜΗΜΑ ΦΥΣΙΚΗΣ**

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***«Organic Bioelectronics»***

**Τρίτη 3 Ιουνίου 2014, ώρα 12.00μ.**

**Αίθουσα Σεμιναρίων Τμήματος Φυσικής**

**Βιβλιοθήκη - κτίριο Φ2 - 3ος Όροφος**

**Organic Bioelectronics**

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In this presentation we make the case that the biological applications of organic semiconductor devices are significant1. Indeed, we argue that this is an arena where organic materials have an advantage compared to traditional electronic materials such as silicon. By discussing the physical structure and morphology of conjugated polymers we will emphasize the key properties that make organic materials ideal for bioelectronics applications. We highlight a few recent devices that show either unique features, or exceptionally high performance2-4. Based on these examples we discuss the future trajectory of this emerging field, note areas where further research is needed, and suggest possible applications in the short term.

(1) R.M. Owens and G.G. Malliaras, *MRS Bulletin* **35**, 453 (2010).

(2) D. Khodagholy, J. Rivnay, M. Sessolo, M. Gurfinkel, P. Leleux, L.H. Jimison, E. Stavrinidou, T. Herve, S. Sanaur, R.M. Owens, and G.G. Malliaras, *Nature Comm.* **4**, 2133 (2013).

(3) D. Khodagholy, T. Doublet, P. Quilichini, M. Gurfinkel, P. Leleux, A. Ghestem, E. Ismailova, T. Herve, S. Sanaur, C. Bernard, and G.G. Malliaras, *Nature Comm.* **4**, 1575 (2013).

(4) A.M.D. Wan, R.M. Schur, C.K. Ober, C. Fischbach, D. Gourdon, and G.G. Malliaras, *Adv. Mater.* **24**, 2501 (2012).