ESI Special Topic: Organic Thin-Film Transistors
Publication Date: July 2007

Organic Thin-Film Transistors

ESI Special Topics: July 2007
Citing URL: http://esi-topics.com/otft/interviews/rfm3_JohnARogers.html

A Research Front Map INTERVIEW with Professor John A. Rogers

<• Return to Research Front Map

In the interview below, we talk with Professor John Rogers about his paper, "Elastomeric transistor stamps: reversible probing of charge transport in organic crystals" (Sundar VC,* et al., *Science* *303[5664]: 1644-6, 12 March 2004). This paper is a core paper in the Research Front on Single-Crystal Thin-Film Transistors in our Special Topic on Organic Thin-Film Transistors, and currently has 156 citations to its credit. In* Essential Science Indicators℠, *Professor Rogers's citation record includes 188 papers cited a total of 4,484 times to date. These papers can be found in the fields of Physics, Chemistry, and Materials Science. Professor Rogers is a Founder Professor of Engineering, Professor of Materials Science and Engineering, and Professor of Chemistry at the University of Illinois at Urbana-Champaign.

ST: Would you please describe the significance of your paper and why it is highly cited?

The work is highly cited, we believe, for two reasons: (1) the techniques that we described are useful to others for study of these kinds of systems and (2) the large, directionally anisotropic mobilities that we reported in rubrene are of interest. Widespread adoption of these and related methods provide evidence for the first reason. Other groups reproducing these results and extending them in interesting ways support the significance of the latter reason.

ST: How did you become involved in this research and were there any particular successes or obstacles that stand out?

Professor John A. Rogers's most-cited paper with 564 cites to date:

Xia YN, *et al.*, "Unconventional methods for fabricating and patterning nanostructures," *Chem. Rev.* 99(7): 1823-48, July 1999.

Professor John A. Rogers's paper(s) represented in the Research Front map with 156 cites to date:

We have been interested in organic semiconductor materials for some time, mainly for their use in flexible electronics. The study of single-crystal samples of rubrene reported in this paper involved a collaboration with a materials physics group at Rutgers, aimed at exploring upper limits in transport properties for more technologically relevant thin-film materials. The mechanical and chemical fragility of the crystals demanded new approaches to examine their electrical properties, in this case through the use of field-effect transistor structures. The soft contact, "transistor stamp" approach that we reported enables non-destructive and reversible measurement of the intrinsic properties of transport on the pristine surfaces of such samples.

Sundar VC, *et al*., "Elastomeric transistor stamps: reversible probing of charge transport in organic crystals," *Science* 303 (5664): 1644-6, 12 March 2004.

Source: *Essential Science Indicators*.

ST: Where do you see your research and the broader field leading in the future?

The organic electronics community continues to make impressive progress, not only on the basic science of organic semiconductors but also on their transition to commercial technologies. In fact, a large fraction of the research and development in this area now occurs at companies. Many university groups, including ours, are shifting their attention to newer classes of advanced materials that have the potential to offer improved performance.

ST: Do you foresee practical or commercial applications?

Yes, there are commercial opportunities for organic semiconductors. The most promising initial applications are in active matrix circuit backplanes for flexible display systems. Impressive prototypes of paperlike electrophoretic displays and flexible organic light-emitting diode devices, together with associated commercialization plans, have been announced recently by several companies.

John A. Rogers, Ph.D.
Department of Materials Science and Engineering
University of Illinois at Urbana-Champaign
Urbana, IL, USA

<• Return to Research Front Map

A Closer Look...

Below are images sent in by Professor John A. Rogers which correspond with the featured paper, or current research.

Figure 1:

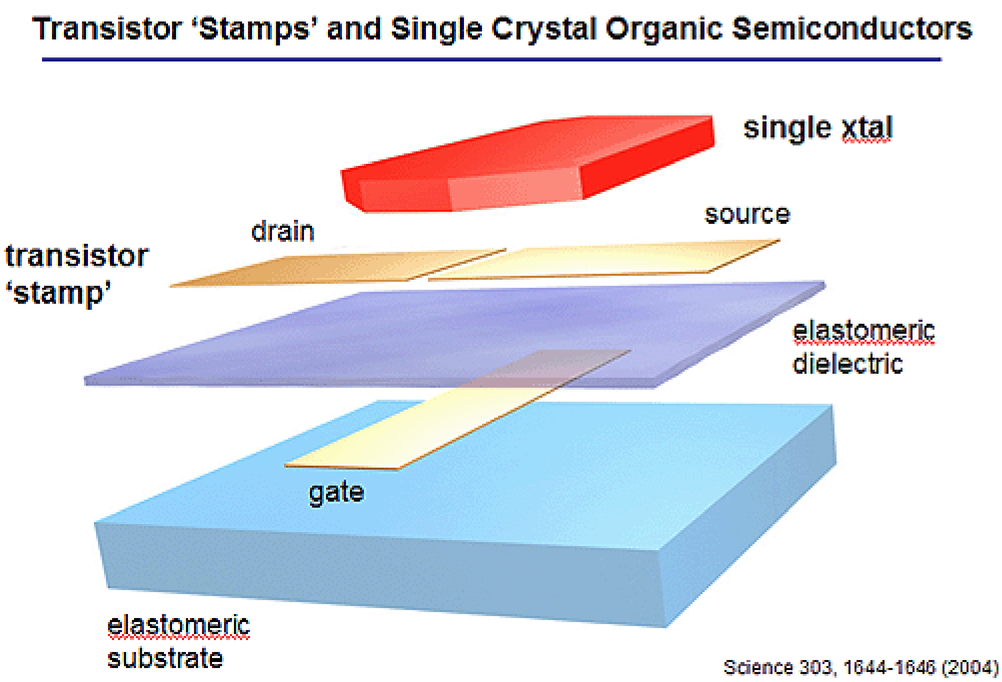
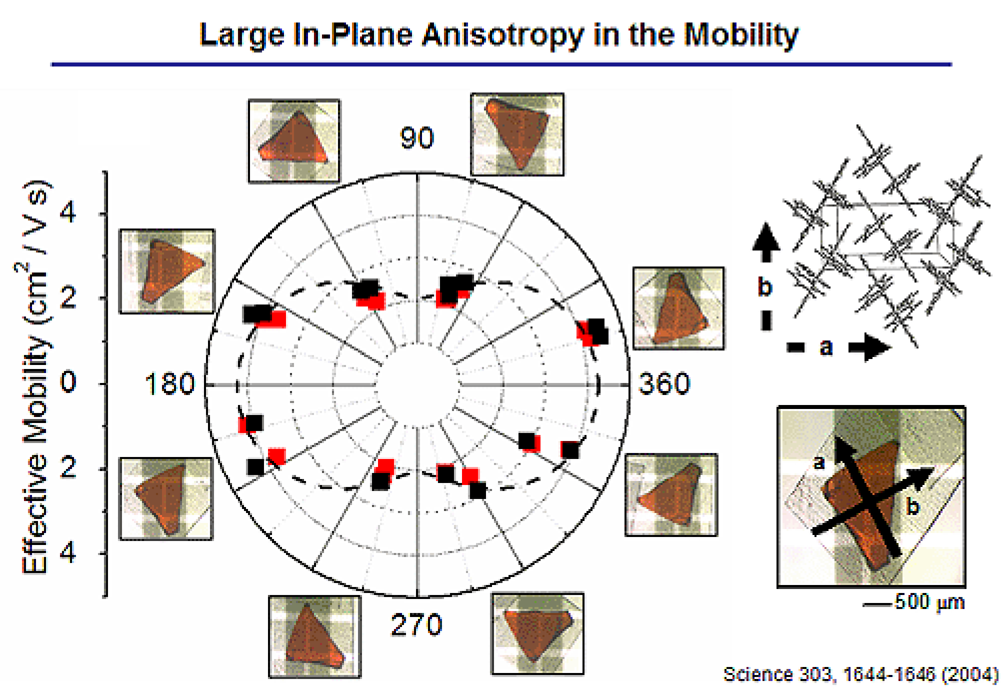


Figure 2:



<• Return to Research Front Map

ESI Special Topics: July 2007
Citing URL: http://esi-topics.com/otft/interviews/rfm3_JohnARogers.html

•> Search Special Topics
Organic Thin-Film Transistors Menu || All Topics Menu || Interview Index
Help || About || Contact

SCI-BYTES - Updated Weekly: What's NEW in Research

Send this page to a friend or colleague
Most-Cited Researchers in... | Analysis Of... | Site Map by Field | ! QUICK SCIENCE !
Alphabetized List of All *Essential Science Indicators* Editorial Features/Interviews