The Center for Nanotechnology in Society
ARIZONA STATE UNIVERSITY

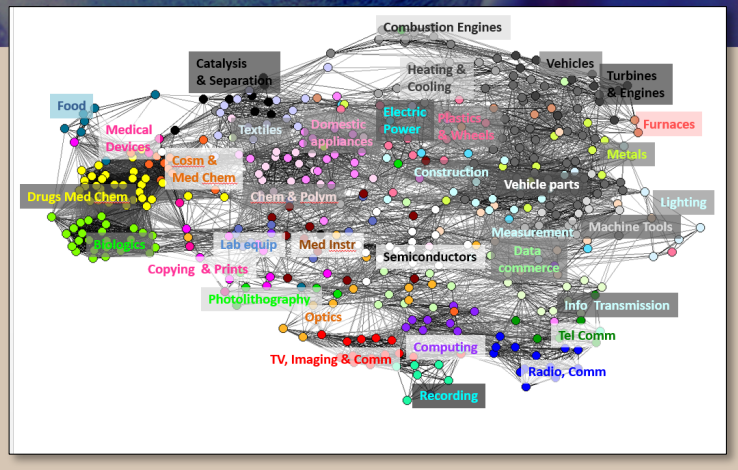
New Patent Mapping System Improves Innovation Insight

One of the goals of RTTA 1 is to characterize nanoscience innovation dynamics. While patent databases provide a catalog of innovation, their hierarchical structure fails to show relationships between patents, often more informative for understanding technology development.

A new patent mapping system, developed by Jan Youtie and her colleagues at Georgia Tech, CNS-UCSB, Universitat Politècnica de València and University of Sussex, and an Atlanta-based producer of data-mining software (IISC) discards the hierarchical classifications and considers how patents cite one another instead. The maps, by showing how technologies are related, can reveal nuances in innovation trajectories. For example, while most current nanotechnology patents are in materials and physics, bio-nano patents are increasing at a faster rate.

Adding to the understanding of these dynamics, Youtie and colleagues also published an analysis of nano lexicon trends and their potential implications for the nanoscience field (Arora, S. et al. **Measuring the Development of a Common Scientific Lexicon in Nanotechnology.** *Journal of Nanoparticle Research.* 16(1): 11 pp. doi: 10.1007/s11051-013-2194-0).

By illustrating relationships between technologies, including their degree of similarity and interdisciplinary intersections, the new patent mapping system reveals innovation hotbeds, trends of technology emergence, discipline evolution, and forces acting on innovation.



Offering unique insight for anticipatory governance, research funding, and academic program development, the mapping system has appeared in *Wired-UK*, the *MIT Technology Review,* and *Futurity*, among other publications. An article on the patent mapping research is forthcoming in the *Journal of the American Society for Information Science and Technology (JASIST)*.

Together with **Dr. Philip Shapira**, also of Georgia Tech, and Dr. Jose Lobo of ASU, **Dr. Jan Youtie** co-leads the Real-Time Technology Assessment (RTTA 1) at CNS-ASU that focuses on the scope of the Nanoscale Science and Engineering (NSE) enterprise and its effects on public values and outcomes.

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