

New nanotechnology analysis: tiny tech brings huge changes

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The Center for Responsible Nanotechnology (CRN) today announced its first series of new research papers in which industry experts predict profound impacts of nanotechnology on society. Eleven original essays by members of CRN's Global Task Force appear in the latest issue of the journal *Nanotechnology Perceptions*, published today. From military and security issues to human enhancement, artificial intelligence, and more, these papers give readers a peek under the lid of Pandora's box to see what the future might hold.

Ray Kurzweil, renowned inventor, entrepreneur, and best-selling author, explained, "As the pace of technological advancement rapidly accelerates, it becomes increasingly important to promote knowledgeable and insightful discussion of both promise and peril. I'm very pleased to take part in this effort by including my own essay, and by hosting discussion of these essays on the 'MindX' discussion board at KurzweilAI.net."

Nanotechnology Perceptions is a peer-reviewed academic journal of the Collegium Basilea in Basel, Switzerland. "We jumped at the chance to publish the CRN Task Force essays," said Jeremy Ramsden, editor-in-chief of the journal. "To us, these papers represent world-class thinking about some of the most important challenges that human society will ever face."

In August 2005, the Center for Responsible Nanotechnology, a non-profit research and advocacy organization, formed its Global Task Force

to study the societal implications of molecular manufacturing, an advanced form of nanotechnology. Bringing together a diverse group of world-class experts from multiple disciplines, CRN is spearheading an historic, collaborative effort to develop comprehensive recommendations for the safe and responsible use of this rapidly emerging technology.

"Our plan from the beginning was to concentrate first on defining the challenges posed by nanotechnology," said Mike Treder, executive director of CRN. "What risks do we really face? How do they relate to each other? What is most important to know in order to cope wisely and effectively with molecular manufacturing?"

Like electricity or computers before it, nanotechnology will bring greatly improved efficiency and productivity in many areas of human endeavor. In its mature form, known as molecular manufacturing, it will have significant impact on almost all industries and all parts of society. Personal nanofactories may offer better built, longer lasting, cleaner, safer, and smarter products for the home, for communications, for medicine, for transportation, for agriculture, and for industry in general.

However, as a general-purpose technology, molecular manufacturing will be dual-use, meaning that in addition to its civilian applications, it will have military uses as well--making far more powerful weapons and tools of surveillance. Thus, it represents not only wonderful benefits for humanity, but also grave risks.

"Progress toward developing the technical requirements for desktop molecular manufacturing is advancing rapidly," said Chris Phoenix, CRN's director of research. "These new essays examine many of the radical changes that molecular manufacturing will bring to society. We hope our readers will decide to get involved in the vital work of raising awareness and finding effective solutions to the challenges presented to

the world by advanced nanotechnology."

The CRN Task Force essays also will be posted online at KurzweilAI.net and Wise-Nano.org. A second collection of essays exploring additional concerns will form the next issue of Nanotechnology Perceptions. Both series are available for publishing or reprint under Gnu Free Documentation License (GFDL). The first group of essays are:

1. "Nanotechnology Dangers and Defenses" - Ray Kurzweil
2. "Molecular Manufacturing: Too Dangerous to Allow?" - Robert A. Freitas Jr.*
3. "Nano-Guns, Nano-Germs, and Nano-Steel" - Mike Treder
4. "Molecular Manufacturing and 21st Century Policing" - Tom Cowper
5. "The Need For Limits" - Chris Phoenix
6. "Globalization and Open Source Nano Economy" - Giulio Prisco
7. "Cultural Dominants and Differential MNT Uptake" - Damien Broderick
8. "Nanoethics and Human Enhancement" - Patrick Lin & Fritz Allhoff
9. "Strategic Sustainable Brain" - Natasha Vita-More
10. "Is AI Near a Takeoff Point?" - J. Storrs Hall
11. "Singularities and Nightmares: The Range of Our Futures" - David Brin

* This essay is (c) Robert A. Freitas Jr., and is not released under GFDL.

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