

## Just around the corner

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I recently saw a very [exciting-sounding news item on nuclear fusion research](#) [1] from The National Institute for Fusion Science (NIFS) on their new Large Helical Device (LHD), a variation on the Tokamak that also has the largest superconductor in the world. It made me reflect on the seemingly continuous flow of development news from seemingly everywhere on recent advances in nuclear fusion research. From the advances in laser-confinement geeks over at places like the [Central Laser Facility \(CFL\) in the UK](#) [2] or the [National Ignition Facility \(NIF\)](#) [3] in the USA to Tokomaks like [the ITER project in France](#) [4] to the new efforts like [the joint project between MIT and Columbia University](#) [5], we seem to be getting ever-closer to the holy grail of commercial nuclear fusion.

The problem seems to be that even though all this research is going on we haven't gotten any closer to power-generating nuclear fusion than [Farnsworth](#) [6] did. We are getting closer and closer to a break-even point, but even that is a far cry from commercialization. We seem to be the same "20 years" away from fusion that we were when I was a child decades ago. It is possible that we need to take a completely new tack, but any bankable results from any approach still lay in the future.

It is easy to armchair-quarterback nuclear fusion because it has a very tangible hurdle to cross that everyone recognizes regardless of scientific knowledge - whatever process works must generate more power than went into it to start the reaction. Such a strong benchmark is not always visible in other areas of scientific prognostication.

A good example of this would be the widely-made predictions about the coming "digital singularity". It is true that we are rapidly reaching a point of data infrastructure that is reaching a level we could call "ubiquitous computing", but are the two terms compatible? Some would say that the "singularity" is not just a ubiquitous data infrastructure accessible to all at anytime, but also [a magic time of wish-fulfillment and social rejuvenation](#) [7]. I say that if the tools are in place people will use them in ways we can't predict. That's at least one prediction about the future that can be made in confidence.

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### Links:

[1] <http://www.military-technologies.net/2010/09/29/japanese-facility-aimed-at-creating-a-sun-on-earth/>

[2] <http://www.theengineer.co.uk/news/system-may-herald-nuclear-fusion-power-generation/1005483.article>

[3] [http://nuclearstreet.com/nuclear\\_power\\_industry\\_news/b/nuclear\\_power\\_news/archive/2010/10/12/NNSA-Congratulates-NIF-Team-on-Winning-2010-Project-of-the-Year-Award-101204.aspx](http://nuclearstreet.com/nuclear_power_industry_news/b/nuclear_power_news/archive/2010/10/12/NNSA-Congratulates-NIF-Team-on-Winning-2010-Project-of-the-Year-Award-101204.aspx)

[4] <http://www.iter.org/>

[5] <http://www.nowpublic.com/environment/important-breakthrough-nuclear-fusion-technology>

[6] <http://www.farnovision.com/chronicles/fusion/vassilatos.html>

[7] <http://io9.com/5661534/why-the-singularity-isnt-going-to-happen?skyline=true&s=i>