

SELECTED QUOTES ON THE IMPORTANCE OF BASIC SCIENCE AND TIMELY CONSTRUCTION OF FRIB

“The remarkable thing is that although basic research does not begin with a particular practical goal, when you look at the results over the years, it ends up being one of the most practical things government does.”

“We cannot know where scientific research will lead. The consequences and spin-offs are unknown and unknowable until they happen. In research, as Albert Einstein once said, imagination is more important than knowledge. We can travel wherever the eye of our imagination can see. But one thing is certain: If we don't explore, others will, and we'll fall behind. “

President Ronald Reagan (April 2, 1988)

“The rewards are often broadly shared, enjoyed by those who bore its costs but also by those who did not. That’s why the private sector under-invests in basic science – and why the public sector must invest in this kind of research. Because, while the risks may be large, so are the rewards for our economy and our society.”

President Barack Obama (April 28, 2009)

“...countries that lead in science lead also in technology. And so if a country wants to lead in advanced technology, it needs to do more than invest in industrial parks or vaguely foster ‘innovation’. It needs to build its basic science...”

Brian W. Arthur (economist credited with influencing and describing the modern theory of increasing returns) *On the Nature of Technology* (Free Press, 2009)

“The tendency of the market to supply too little of certain types of R&D provides a rationale for government intervention; big new ideas are often rooted in well-executed R&D...Direct government support or conduct of the research may make the most sense if the project is highly focused and large-scale, possibly involving the need for coordination of the work of many researchers and subject to relatively tight time frames. Examples...include the space program and the construction and operation of “atom-smashing” facilities...”

Ben Bernanke in a speech to the Federal Reserve (May 16, 2011)

“There's no way you can be economically competitive in a sustained way without research.”

Peter McPherson, president of the Association of Public and Land-grant Universities in an article on Politico (November 17, 2016)

“The Facility for Rare Isotope Beams is a major new strategic investment in nuclear science. It will have unique capabilities and offers opportunities to answer fundamental questions about the inner workings of the atomic nucleus, the formation of the elements in our universe, and the evolution of the cosmos.”

“Recommendation: The Department of Energy’s Office of Science, in conjunction with the State of Michigan and Michigan State University, should work toward the timely completion of the Facility for Rare Isotope Beams and the initiation of its physics program.”

The National Academies *2012 Decadal Study of Nuclear Physics*

“During routine operation for its nuclear physics mission, FRIB will produce a broad variety of isotopes that could be harvested synergistically without interference to the primary user. Research quantities of many of these isotopes, which are of interest to various applications including medicine, stockpile stewardship and astrophysics, are currently in short supply or have no source other than FRIB operation.”

**Meeting Isotope Needs and Capturing Opportunities for the Future:
The 2015 Long Range Plan for the DOE-NP Isotope Program**

“The progress achieved under the guidance of the 2007 Long Range Plan has reinforced U.S. world leadership in nuclear science. The highest priority in this 2015 Plan is to capitalize on the investments made. “

“Expediently completing the Facility for Rare Isotope Beams (FRIB) construction is essential. Initiating its scientific program will revolutionize our understanding of nuclei and their role in the cosmos.”

2015 Nuclear Science Long Range Plan: Reaching for the Horizon