5 March 2018
The Honorable Joeseph P. Kennedy III
Subject: The closure of the Omega Laser Laboratory Facility and its potential ramifications to the resumption of the testing of nuclear weapons

Dear Congressman Kennedy:

Per your request for a letter summarizing the impact of the potential closure of the Omega Laser Facility, a result if the PBR were enacted by Congress, there would be, as discussed on Thursday morning at Logan, irreversible and disastrous ramifications for maintaining the safety and reliability of our nuclear stockpile. As also discussed, MIT currently has 6 graduate students whose PhD thesis work (in High-Energy-Density Physics* (HEDP)) takes place at the University of Rochester's Omega Laser Facility. Nine other former MIT graduate students have received their Phds for work at the Omega over the last 25 years, and two of them have received the American Physical Society's most prestigious Marshall Rosenbluth Outstanding PhD thesis Award. Just as important, most of these former students have then gone on to work at the National Labs in HEDP.

The President's PBR calls for the closure of the Omega Facility over the next three years. Such an action would be calamitous for the field and would largely eliminate, not only for MIT, but for all other universities, the training and education of PhD scientists working in HEDP*. It would leave our Nation without trained and highly-qualified scientists who could evaluate the safety and reliability of our nuclear stockpile. If we find ourselves in the predicament that our stockpile can no longer be certified as safe and reliable, then it is quite possible that testing of nuclear weapons by the US would resume. Although as you know the US signed (but did not ratify) the Comprehensive Test Ban Treaty, all of the treaty signatories have adhered to the CTBT. There is little question that if the US were to resume testing, China and Russia would follow suit, as would several other countries, Pakistan and India, with Israel, Iran, and others to follow.

With this situation in mind, making sure that the appropriations for the Omega Facility is at least at the 2018 levels, and more generally the appropriations for the Inertial Confinement Fusion Program, in which the Omega budget resides, is crucial. ($544 Million is the FY2018 Senate Energy and Water Appropriations Committee mark for the entire Inertial Confinement Fusion Program.)

FYI, Senator Schumer is meeting today (5 March) at the Omega Facility with the Omega Laser Facility management and University of Rochester officials to address this critical situation. I have been invited by the Omega Director, Dr. E. Michael Campbell, to this event to help explain the impact of such potential cuts to the Nation's University PhD Programs in HEDP and, as discussed above, its broader implications.

I am available to discuss this issue in further detail.

Sincerely yours,

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Copy: Dr. E. Michael Campbell, Director, Omega Laser Facility
Congressman Mike Capuano

* The field of High-Energy-Density Physics involves the generation, in the laboratory, of extreme conditions in temperatures and densities ---100s of millions of degrees, and densities of 100s of g/cm^3. At the Omega Facility, this is accomplished through the use of 60 lasers precisely directed and timed at a small, mm-size target. Such plasma conditions are similar to those found in the testing of a nuclear weapon.