

expect a significant enhancement of the asymmetry as the pion mass approaches the Δ -nucleon mass difference from above.

References

1. A. W. Thomas, *Phys. Lett. B* **126**, 97 (1983).
2. P. Amaudruz et al. (New Muon collaboration), *Phys. Rev. Lett.* **66**, 2712 (1991).
3. J. J. Ethier et al., *Phys. Rev. D* **100**, 034014 (2019).

Anthony W. Thomas
University of Adelaide
Adelaide, Australia

ITER's net loss

In July 2020 PHYSICS TODAY published a letter from Wallace Manheimer (page 10) written in response to the article "The challenge and promise of studying burning plasmas" by Richard Hawryluk and Hartmut Zohm (December 2019, page 34). Manheimer criticizes the international fusion experiment known as ITER and the prospects for commercial fusion. I would like to point out an error in Manheimer's calculation, which, as it turns out, further supports his criticism.

Manheimer asks what the results of ITER would mean for power production. He applies a conservative thermal-to-electric power conversion factor of one-third to the projected 500 MW thermal output of ITER, and from that he concludes that ITER would generate a gross output of approximately 170 MW of electricity (MWe). He then says that the 50 MW heating input would require 150 MW of electrical power, leaving "virtually nothing for the power grid." Manheimer's calculation would mean a net electrical output of about 20 MWe.

Manheimer, however, doesn't account for the net plant power drain—known as the balance of plant—which is at least 150 MWe. That value includes such power drains as liquid-helium refrigerators, water pumps, and vacuum pumps. When one includes the injected heating power and the plant power drains, a reactor designed like ITER would result in a net loss of 80 MWe, at best.

ITER was never designed to provide net electricity or net thermal power across the entire reactor. Instead, it was designed only to generate net thermal power across

the plasma. But in its public communications, the ITER organization until only recently did a poor job of communicating that distinction. That led to, as it did with Manheimer, the common misunderstanding about the expected power balance for ITER. That misconception does not account for at least half of the expected input power.

Steven B. Krivit
(steven3@newenergytimes.com)
New Energy Times
San Rafael, California

Correction

December 2022, page 23—The image caption should read, "Stargazing events such as this one from 27 August at Mo'okini Heiau, a National Historic Landmark on the island of Hawaii, are among the activities that the Thirty Meter Telescope outreach team is collaborating on with Native Hawaiians in efforts to build positive long-term relationships." The credit should read "'Ohana Kilo Hōkū/Keith Uehara.'" PT

PRECISION MEASUREMENT GRANTS

The National Institute of Standards and Technology (NIST) anticipates awarding two new Precision Measurement Grants that would start on 1 October 2023, contingent on the availability of funding. Each award would be up to \$50,000 per year with a performance period of up to three years. The awards will support research in the field of fundamental measurement or the determination of fundamental physical constants. The official Notice of Funding Opportunity, which includes the eligibility requirements, will be posted at www.Grants.gov.

Application deadline is tentatively **February 2023**.
For details/unofficial updates see: physics.nist.gov/pmg.

For further information contact:

Dr. Joseph N. Tan, Ph.D.
NIST Precision Measurement Grants Program
100 Bureau Drive, Mail Stop 8422
Gaithersburg, Maryland 20899, U.S.A.
Email address: joseph.tan@nist.gov

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NON-TENURE TRACK LECTURER POSITION

The University of Maryland, Baltimore County (UMBC) Department of Physics invites applications for a long-term, non-tenure track Lecturer position beginning Fall 2023. This is a nine-month, academic year position. The successful candidate will teach the introductory physics course sequences for life scientists and for scientists & engineers, and general education offerings. The successful candidate will supervise and train the graduate teaching assistants assigned to these courses, participate in or lead initiatives to improve the success of all students & to engage in service to the Physics department & the institution. Expectations include a Ph.D. in Physics or a closely-related field, experience teaching introductory physics, & a demonstrated commitment to improving student success. Interested candidates should upload a cover letter, a CV, a statement of teaching experience and interests, a statement of commitment to inclusive excellence in higher education, & the contact information for at least three references to the Interfolio website at <http://apply.interfolio.com/117300>. Applications will be reviewed until a suitable candidate is identified. Applications submitted by January 20, 2023 will receive full consideration.