

# The 'woman who understood Newton'

August 29 2013

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Portrait of Italian mathematician and physicist Laura Bassi (1711-1778) by Carlo Vandi (18th century)

In this month's edition of *Physics World*, Paula Findlen from Stanford University profiles Laura Bassi—an emblematic and influential physicist from the 18th century who can be regarded as the first ever woman to forge a professional scientific career.

Once described as the "woman who understood Newton", Laura Bassi—born in the city of Bologna in 1711—rose to celebrity status in Italy and all across the globe, gaining a reputation as being the best [physics teacher](#) of her generation and helping to develop the discipline of [experimental physics](#).

Bassi held numerous professorships and academy memberships throughout her life, starting as a professor of universal philosophy at the University of Bologna in 1732, where she may have been the first woman to have embarked upon a fully fledged scientific career. Shortly before that, Bassi became only the second woman, for whom there is documentary evidence, to have ever received a university degree.

Her professorship at the University of Bologna was created solely for her, beyond the normal number of faculty positions, as was her admission to the Academy of Sciences of Bologna Institute—an equivalent of the Royal Society—which was the vehicle that propelled Bassi into the public eye.

Like most celebrity figures, Bassi's career was not without controversy. Pressure from older male colleagues, who considered it indecent for a young woman to be discussing ideas of nature with them, resulted in the archbishop of Bologna making an explicit injunction on her university professorship—she was only allowed to lecture occasionally when she was specifically asked.

Bassi was extremely passionate about her teaching and, when her request to have this injunction lifted was declined, she chose to raise her scientific value instead through an additional programme of private study. She also shocked some observers by reading books that were prohibited by the Roman Catholic Church, including works by Protestant scientists such as Galileo and Descartes.

After marrying fellow professor Giuseppe Veratti in 1738, Bassi was able to invite guests to her house to discuss physics without violating her teaching restrictions. In 1749 Bassi officially opened her domestic school, bringing renewed and more lasting fame.

In 1764 physician John Morgan—a friend of Benjamin Franklin—visited the Bassi–Veratti home laboratory and watched Bassi perform Newton's prism experiments, promising to tell his famous American friend that he had met her.

Alessandro Volta—who later became the inventor of the battery—sent Bassi his earliest publications, hoping to gain approval for his work. The culmination of this appreciation came in 1776—two years before her death—when Bassi was appointed Bologna Institute professor of experimental physics. "The Bologna academicians, in the end, had learned to live with the century's most famous female scientist as their colleague for almost 45 years," writes Findlen.

One reason for Bassi's relative obscurity today is that only four of her papers appeared in print during or after her lifetime. Many of Bassi's unpublished papers went missing during the Napoleonic era. However, Findlen concludes that Bassi's outstanding contributions were made through conversation, demonstration, experimentation and explanation.

"She produced the kinds of incremental results that tend to accrue with far more ordinary research that—although not worthy of a Nobel prize—is essential to the daily pursuit of science. She reminds us of the importance of the kind of person who can reveal dimensions of science other than a singularly great discovery or insight," writes Findlen.

Provided by Institute of Physics

Citation: The 'woman who understood Newton' (2013, August 29) retrieved 25 April 2024 from <https://phys.org/news/2013-08-woman-understood-newton.html>

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