

# Princeton University

Honors Faculty Members  
Receiving Emeritus Status



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The biographical sketches were written by colleagues in the departments of those honored, except where noted.

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# Chiara Rosanna Nappi



Chiara Nappi is a theoretical physicist who has made important contributions to a broad range of problems in modern particle theory. She served as senior research physicist at Princeton from 1983 to 1988, was a long-term member of the Institute for Advanced Study from 1988 to 2001, and was appointed professor of physics at Princeton in 2001. She has been a valued member of the Princeton theoretical physics community for thirty years and, in her years as a Princeton faculty member, a powerful and outspoken advocate for improving the educational and social experience of physics students.

Chiara was born and raised in Italy, doing her post high school studies at the University of Naples, where she received her Ph.D. in 1976. Her early scientific work was devoted to the use of rigorous methods to derive exact results for statistical mechanical models, such as the Ising model of spins on a two-dimensional lattice. After moving to the United States for a postdoctoral position at Harvard University, her interests began to evolve away from rigorous mathematical physics toward the more conceptual concerns of particle physics. This change of approach came to its full flowering after she moved to Princeton in 1980 for a position as member in the School of Natural Sciences at the Institute for Advanced Study.

The topics in particle theory that she addressed, and often significantly illuminated, during her Princeton career include string theory, the Skyrme approach to quantum chromodynamics baryons, quantum black hole physics, and supersymmetric phenomenology. Her work on the Skyrme soliton showed that the picture of baryons as solitons of chiral lagrangians was quantitatively accurate at the 10 percent level for a wide variety of static and dynamic properties. This was influential and widely cited work that inspired a host of other workers. She performed studies of sigma model beta functions in type-I superstring

theory that illuminated many important physical questions in string theory and pioneered the boundary state method for open string theory in nontrivial spacetime backgrounds. This work foreshadowed, and was ultimately quite useful in, the D-brane revolution in our understanding of string theory that occurred in the 1990s. She has made valuable contributions to many other areas of string theory, such as exact conformal field theory representations of curved spacetimes, string theory models of black hole physics and understanding how string theory resolves the famous inconsistencies, inherent in standard quantum field theory, of interacting higher-spin massive particles.

It should be noted that Chiara's importance to the local theoretical physics scene over the years went way beyond her specific scientific contributions: by virtue of her enthusiastic and engaging personality, she was a "sparkplug" of activity, with a knack for getting the best out of students and bringing senior colleagues together. When she became a member of the Princeton physics faculty, successive department chairs, having noted this aspect of her personality, exploited it by putting her in charge of student welfare in the department. After a few years as director of graduate studies, she became the quasi-permanent departmental representative, in which position she did more than any dep rep in memory to excite student enthusiasm for the physics major. A characteristic example of her approach was her "physics tour" for sophomores interested in the department: she somehow raised the money, did the organization, and took the time to shepherd two dozen sophomores on a between-semesters tour of "cool" physics sites in California (including a night of observing at the Mount Wilson telescope). It will be difficult to duplicate the level of energy and flair that Chiara regularly invested in the care and feeding of our students.

Chiara was intensely interested in physics education in general and wrote articles in English and Italian publications about science education for the young. As a parent, this concern led her to run for, and be elected to, the board of the Princeton school system, where she served for half a dozen years in the 1990s, arguing for higher academic standards in our local schools. As a successful woman in physics, she was also very concerned with understanding why advanced

education in physics is, especially in the United States, less attractive to women than other scientific fields. In addition to writing about her observations on this subject, she also founded a summer school, called Prospects in Theoretical Physics, which aims to motivate women (and other theoretical physics minorities) to persevere in their advanced studies in theoretical physics. Characteristically, having seen a problem that concerned her deeply, Chiara was willing to devote time and energy to a practical contribution to its solution.

In summary, Chiara's contributions to Princeton as an intellectual community and as an educational enterprise were many and valuable. She was a wonderful, colorful departmental colleague, generous with her time and enthusiasm for colleagues and students alike. The department will miss her day-to-day presence now that she has transitioned to emerita status, but we wish her well and hope that enjoying her grandchildren will not preclude staying in close touch with the many old colleagues who consider her one of their best friends.