

YALE Bulletin & Calendar

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Final Tercentennial Tetelman Fellow to speak at events



Alexander Pines

The sixth and final Tercentennial Tetelman Fellow is renowned chemist and educator Alexander Pines, whose research in nuclear magnetic resonance (NMR), both theoretical and experimental, has had a wide impact in physics, chemistry, materials science and biomedicine.

Pines will talk about his work during three events on campus Wednesday-Friday, Nov. 28-30.

He will deliver the Tetelman Lecture, "Some Magnetic Moments," at 5:15 p.m. on Wednesday at the Yale University Art Gallery's McNeil Lecture Hall (enter from High Street).

The next day at 4 p.m., he will be the guest at the Jonathan Edwards College master's house, 70 High St. He will talk on the topic "Irreversibility and the Arrow of Time."

Finally, on Friday, he will present a Department of Chemistry seminar on "Reorientation of Spins and Cats" at 4 p.m. in Rm. 160 of Sterling Chemistry Laboratory, 225 Prospect St. Tea will be served at 3:30 p.m.

All three events are open to the public free of charge.

Pines is the Glenn T. Seaborg Professor of Chemistry at the University of California at Berkeley and faculty senior scientist at the Lawrence Berkeley National Laboratory. As a doctoral student at the Massachusetts Institute of Technology working under the noted chemist and NMR pioneer James Waugh, Pines used a technique called "cross-polarization" to transfer the polarized spin of hydrogen nuclei to the nuclei of carbon-13 atoms. This made possible the first high-resolution NMR study of carbon-13 in solids and opened the door to the modern era of solid-state NMR spectroscopy.

In describing his work, Pines has said: "The nuclei of many atoms are endowed with a property called 'spin' causing them to behave like miniscule quantum magnets that give rise to nuclear magnetism with 'resonance' in the radio-frequency regime -- hence the name nuclear magnetic resonance. At one level NMR presents a marvelous physical playground, a system of interacting spins that display the mysterious effect of quantum coherence, non-local entanglement and time-reversal echoes. At another level, the NMR spectrum constitutes a diagnostic

'fingerprint' of a molecule and is therefore enormously useful for studies of molecular structure, dynamics and function."

Pines received the Wolf Prize in Chemistry in 1991. His other honors include the Irving Langmuir Prize of the American Chemical Society, the Bourke Medal of the Royal Society of Chemistry and the Distinguished Teaching Award of the University of California. Pines is *Docteur Honoris Causa* of the University of Paris and the University of Rome, a member of the National Academy of Sciences and past president of the International Society of Magnetic Resonance.

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