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Joint ICTP-IAEA Workshop on Physics of Radiation Effect and its Simulation for Non-Metallic Condensed Matter | (smr 2359)

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Nuclear technology applications of ceramics, composites and other nonmetallic materials - Adriatico Guest House Giambiagi Lecture Hall (10:30-11:30)

Inorganic nonmetallic materials are useful for a wide variety of nuclear technology technologies, ranging from nuclear fuels to functional applications. For example, mineral insulated cables (e.g., coaxial cables) are routinely used to carry electrical signals in high radiation and/or high temperature environments. Fiber optic cables and optical windows are also used in a variety of accelerator and reactor systems. Ceramics containing neutron-absorbing elements (e.g., ZrB₂ or B₄C) are useful for reactivity control in some reactor systems. Ceramics have several favorable attributes that make them promising candidates for advanced fuel systems such as inert matrix fuels and other microencapsulated fuel forms (e.g., TRISO particle fuels), and are proposed as a potential tritium breeding material for future deuterium-tritium fusion reactors. Ceramic composites such as carbon fiber reinforced graphite and SiC fiber reinforced SiC matrix composites offer a variety of attractive properties for structural applications in demanding high temperature, high radiation environments. An overview of the diverse applications of ceramics and composites in nuclear technology will be given.

time	title	presenter
10:30	Nuclear technology applications of ceramics, composites and other nonmetallic materials	STEVE ZINKLE