FTCN Replay: How Science Fiction Fuels EMSO Innovation

In a recent episode of **From the Crows' Nest**, host and AOC Director of Advocacy & Outreach Ken Miller explored an unconventional approach to innovation with **Dr. Lisa Yaszek**, Regents Professor of Science Fiction Studies at Georgia Tech. Their conversation revealed how science fiction functions as a crucial tool for technological advancement, particularly in fields like electromagnetic spectrum operations.

The Grammar of Technological Progress

Yaszek explained that science fiction provides society with essential tools for discussing technological change.

"It's the literature of techno scientific modernity," she said. "It gives us the story types and character types and themes and tropes that we need. A sort of grammar, if you will – a way that we can talk to each other about our hopes and fears about science and technology and our dreams for the future."

This "grammar" proves especially valuable in fields working with cutting-edge technologies. Science fiction, Yaszek suggested, creates the mental framework necessary for imagining solutions that don't yet exist.

Timeline Constraints in Scientific Research

Yaszek identified a key difference between scientific research and science fiction writing. Scientists seeking funding typically limit their speculation to three to five years, while "science fiction authors are in no way bound to that three to five years," she explained. "And in fact, since the beginning of the genre, it's always been 50 years hence, 500 years hence, you know, 5,000 years hence."

Historical examples demonstrate the practical impact of this longer-term thinking. Yaszek noted that the 1983 film War Games influenced President Reagan's approach to cybersecurity initiatives, while physicist Leo Szilard was inspired to pursue physics after reading H.G. Wells's writing about nuclear weapons. She also revealed that Reagan maintained an advisory group comprising retired military personnel and science fiction authors, including Larry Niven and Jerry Pournelle.

Balancing Imagination and Plausibility

Yaszek emphasized that science fiction operates under specific constraints despite its imaginative scope. "We want to remember it's science fiction," she said. "Part of the reason why we're willing to be thrown into these new worlds that are unsettling … is that we know as science fiction readers there are rules to the game and that eventually someone's going to explain to us why the world is the way it is."

She cited Andy Weir's "The Martian" as a successful example, noting that Weir published chapters online and consulted scientists to verify plausibility. This approach creates what Yaszek termed "cognitive estrangement" – a process where audiences initially face confusion in an unfamiliar world, gradually understand its logic, then return to reality with expanded perspectives on possibility.

Government Reluctance Despite Proven Value

Yaszek observed a paradox in government engagement with science fiction. While historical collaboration between scientists and science fiction writers has produced results – such as physicist Kip Thorne making discoveries about black holes while consulting on the Academy Award-winning film "Interstellar" – recent government communications often distance themselves from science fiction associations.

"In the last 50 years I've seen a shift, especially in

government rhetoric," Yaszek said. "If you go on especially government websites for fields that are really reliant on emergent technologies, there's a lot of this is not science fiction." She noted this defensive positioning appears counterproductive given continued evidence of productive collaboration.

Artificial Intelligence and Current Trends

On the subject of artificial intelligence, Yaszek recommended Spike Jonze's film "Her" for its realistic portrayal of AI's workforce impact, particularly regarding deskilling and reskilling. She also highlighted three emerging science fiction trends: revived cyberpunk with more optimistic tones, Afrofuturism and other non-Western perspectives, and "Hope Punk" – a genre that rejects both naive optimism and pessimism.

Describing Hope Punk, Yaszek said: "It doesn't matter if the glass is half empty or half full. What matters is there's water in the glass, and that's worth fighting for."

Women's Contributions to Science Fiction

Yaszek, whose research includes extensive work on women in science fiction, noted that women's participation in science fiction has consistently matched their participation in science fields over the past 150 years. Women writers historically expanded the genre by demonstrating how technology transforms private spaces like homes alongside public spaces like laboratories.

"Women historically drew attention to the ways that science and technology are transforming not just public spaces like laboratories and launchpads, but the way that they transform private spaces like libraries and living rooms and laundry rooms even," Yaszek said.

The conversation highlighted science fiction's role as what

Yaszek called a “virtual laboratory” where ideas can be tested without resource constraints – a potentially valuable tool for organizations navigating complex technological challenges in electromagnetic spectrum operations and related fields.