Chemistry and materials science for sustainability: reflections on why, how and what

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The scientific evidence about the harm that extensive use of substances that are toxic, depleting, rare, persistent, and unstable are causing the planet and the people calls for fundamentally new approaches to education, research and innovation in chemistry and materials science. There is an urgent need to ensure that the products of our sciences continue to deliver important and sometimes absolutely essential functions while integrating human well-being, the health and resilience of the planet, and sustainability as essential elements of performance and value.

This presentation aims to provide some reflections on the complexity, insights, and choices, and also the challenges, wicked problems and cognitive dissonance that have been obtained from experiences in teaching and leading a master's program in Sustainable chemistry, and leading and performing research in chemistry and materials science for sustainability within the Mistra SafeChem and Wallenberg Initiative Materials Science for Sustainability (WISE) programs. The presentation will combine a global outlook with specific examples from my current research and teaching.

References and links:

1. L. Hultman et al., "Advanced materials provide solutions towards a sustainable world" (Correspondence), ***Nature Materials,*** 23, 160-161 (2024)

2. https://mistra.org/program/forsta-programmet/#eng

3. https://wise-materials.org/

4. A. Di, C. Schiele, S. E. Hadi, L. Bergström, "Thermally insulating and moisture-resilient foams based on upcycled aramid nanofibres and nanocellulose", ***Adv. Mater.,*** 35, 2305195 (2023).