

“The road to sustainable cement”

In 1987, the United Nations Brundtland Commission defined sustainability as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” This definition addresses the importance of continuing to maintain and grow infrastructure in developed and developing regions for quality of life. In 2024, the sustainability of construction, and particularly of cements, has taken on a new urgency as climate goals are becoming more ambitious and formalized. Correspondingly, we are seeing incredible growth in research and development of green cements. In this talk, I'll explore a bit of the history of sustainable cements (including the pioneering work of Della Roy!), putting new cements in their historical and technological context. I'll discuss in more detail the sustainable cements that have been the focus of my research on over the past two decades, namely calcium sulfoaluminate belite cements, alkali-activated materials, and supplementary cementitious materials with an emphasis on synthesis, characterization, and novel applications.