

Lab Curiosity to Commercial Process to (Maybe) High-valued Solar-thermal Products

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Prof. Alan “Al” Weimer
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Brought to you by the Heliostat Consortium Resource, Training, and Education (RTE) topic area

BIO

Al Weimer is the Melvin E. and Virginia M. Clark Professor of Chemical and Biological Engineering at the University of Colorado Boulder, joining the faculty in 1996 after a 16-year career with the Dow Chemical Company. He is named inventor on 52 issued U.S. Patents and has spun three startups out of his academic lab to commercialize the IP that was developed (ALD NanoSolutions/Forge Nano, Big Blue Technologies, and Sundrop Fuels).

He has received six major research awards from the American Institute of Chemical Engineers (AIChE) including the 2017 Lifetime Achievement Award in Particle Technology. His invention and commercialization of processes to synthesize fine ceramic powders has been recognized nationally, and he was named Inventor of the Year at CU for his Particle ALD co-invention. He has published over 250 peer-reviewed journal articles and has advised 44 Ph.D. students, including seven academics and three CEOs.

ABSTRACT

This presentation is a true story of the invention and development of the “Rapid Carbothermal Reduction” (RCR) process for manufacturing ultrafine carbide powders – boron carbide, silicon carbide, and eventually the commercialization of tungsten carbide. This was an internal struggle for a young engineer within Dow Chemical to start a totally new business within a giant company. Its objective was to displace a German process for producing B₄C and then expand into other high-valued non-oxide ceramic powders. There is an opportunity today to redirect this near-2000°C process from electrical resistance heating.

This talk is particularly directed towards young engineers and scientists who might want to take a risk and to think “out of the box”, to be inventive, and to also understand the risks associated with putting your credibility (and job) on the line.



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