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Philip Rack Joined the faculty in Materials Science and Engineering at the University of Tennessee in 2001. He earned his bachelor's degree *Magna Cum Laude* in Materials Science and Engineering from the Georgia Institute of Technology in 1993, and his Ph.D. in Materials Science and Engineering from the University of Florida in 1997. His dissertation research included thin film deposition, surface analysis, and theoretical modeling of optical transitions in thin film electroluminescent materials. In 1997, Dr. Rack joined Advanced Vision Technologies Inc. (AVT) as a Senior Research Scientist where he led their research on luminescent and field emitter materials and contributed to process development in their vacuum microelectronic devices. In 1999, Dr. Rack joined the faculty in the Microelectronic Engineering Department at the Rochester Institute of Technology. There he taught courses in thin film processing, materials characterization, and microlithography and performed research on optical properties and vacuum microelectronic devices. Since joining UT he was promoted to Associate and Full Professor in 2005 and 2010, respectively. In 2011 Dr. Rack was named the Leonard G. Penland Chair awarded by the College of Engineering. He has authored or co-authored over 110 refereed journal papers (including 2 book chapters and 5 invited review articles) and has contributed to ~200 (~40 invited) technical presentations at national and international conferences. He has served on the AVS executive committee, has organized several thin film division sessions and in was the thin film division program Chair in 2007-2008. Dr. Rack also was the program chair of the 3rd International Workshop on Focused Electron Beam Induced Processing in 2010.

Dr. Rack's research is focused on thin film materials and nanotechnology and the four main research thrusts are summarized in figure 1. His research program is facilitated by a joint appointment in the Center for Nanophase Materials Sciences at the Oak Ridge National Laboratory, which he has held since 2005. Since joining the University of Tennessee, Dr. Rack has been supported by the Center for Materials Processing via matching funds on several programs. Most recently, CMP has contributed to the

purchase of a new Nd YAG nanosecond pulsed laser. This laser will be used to study the self- and directed assembly of metallic thin films and used to deposit complex multicomponent materials which will complement the combinatorial thin film sputtering system that the group has leveraged in many fundamental materials studies.

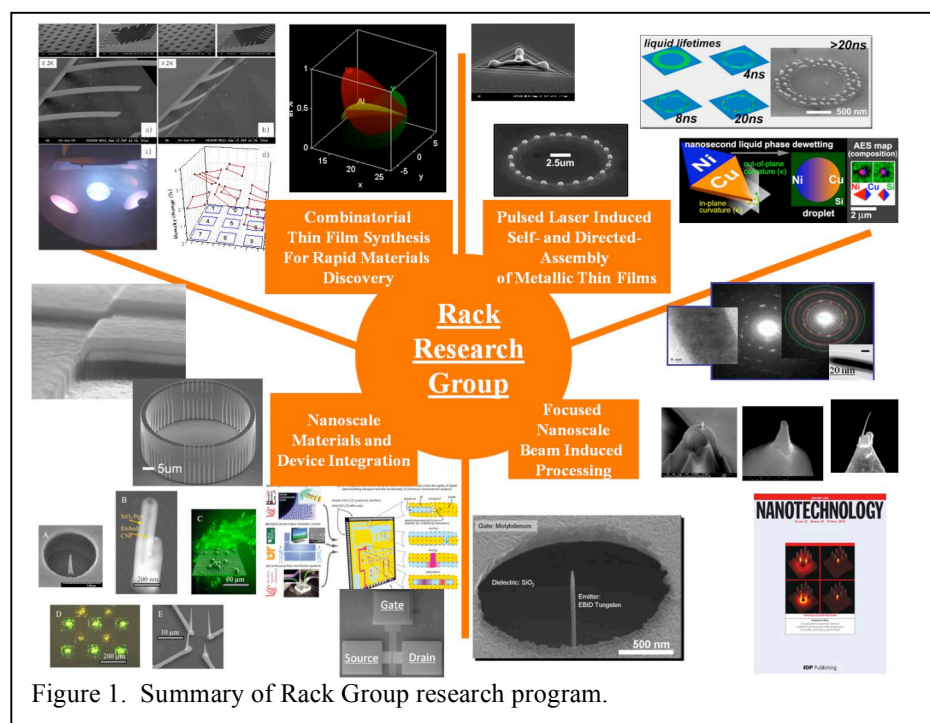


Figure 1. Summary of Rack Group research program.