

Julius Schoop (PI)

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PROFESSIONAL PREPARATION

Centre College	Danville, KY, USA	Chemical Physics	BS, 2011
University of Kentucky	Lexington, KY, USA	Materials Science Engineering	PhD, 2015
University of Kentucky	Lexington, KY, USA	Institute for Sustainable Manufacturing	Postdoc, 2015-2016

APPOINTMENTS

- Aug. 2018 – present: Assistant Professor, Dept. of Mechanical Engineering, Univ. of Kentucky
- Nov. 2016 – July 2018: Principal Engineer and Program Manager, TechSolve Inc., Cincinnati, OH, USA
- Aug. 2015 – Oct. 2016: Postdoctoral Research Associate Senior, Inst. for Sust. Manuf., Univ. of Kentucky
- Aug. 2011 – July 2015: Research Assistant, Dept. of Materials Science Engineering, Univ. of Kentucky

PRODUCTS

(a) Five Most Closely Related Products

1. **J. Schoop**, T.J. Balk and I.S. Jawahir "Size Effect in Finish Machining of Porous Powdered Metal" *Precision Engineering*, 44, (2015); pp. 180-191, doi: [10.1016/j.precisioneng.2015.12.004](https://doi.org/10.1016/j.precisioneng.2015.12.004)
2. S. Buchkremer and **J. Schoop** "A Mechanics-based Predictive Model for Chip Breaking in Metal Machining and Its Validation" *CIRP Annals - Manufacturing Technology*, 1, 65, (2016), pp. 69–72, doi: [10.1016/j.cirp.2016.04.089](https://doi.org/10.1016/j.cirp.2016.04.089)
3. **J. Schoop**, M. Effgen, T.J. Balk, and I.S. Jawahir. "Improved Product Quality and Resource Efficiency in Porous Tungsten Machining for Dispenser Cathode Application by Elimination of the Infiltration Process" *Re-Engineering Sustainability*, Springer (2013); pp. 241-4, doi: [10.1007/978-981-4451-48-2_39](https://doi.org/10.1007/978-981-4451-48-2_39)
4. I. S. Jawahir, D. A. Puleo and **J. Schoop** "Cryogenic machining of biomaterials for improved functional performance, life and sustainability in biomedical implants" *Procedia 7th CIRP HPC*, 46, (2016) pp. 7-14, doi: [10.1016/j.procir.2016.04.133](https://doi.org/10.1016/j.procir.2016.04.133)
5. W. F. Sales, **J. Schoop**, and I. S. Jawahir "Tribological behavior of PCD tools in precision machining of Ti-6Al4V alloy using cryogenic, hybrid and flood cooling" *Tribology International*, 114, (2017), pp. 109-120, doi: [10.1016/j.triboint.2017.03.038](https://doi.org/10.1016/j.triboint.2017.03.038)

(b) Five Other Significant Products

1. **J. Schoop**, W. F. Sales, and I. S. Jawahir "High speed cryogenic finish machining of Ti-6Al4V with polycrystalline diamond tools" *Journal of Materials Processing Technology*, 250, (2017), pp. 1-8, doi: [10.1016/j.jmatprotec.2017.07.002](https://doi.org/10.1016/j.jmatprotec.2017.07.002)
2. **J. Schoop**, F. Ambrosy, F. Zanger, V. Schulze, T.J. Balk and I.S. Jawahir "Cryogenic Machining of Porous Tungsten for Enhanced Surface Integrity" *Materials Processing Technology*, 229, (2016); pp. 614-21, doi: [10.1016/j.jmatprotec.2015.10.002](https://doi.org/10.1016/j.jmatprotec.2015.10.002)
3. J. Caudill, B. Huang, C. Arvin, **J. Schoop**, K. Meyer, and I. S. Jawahir. "Enhancing the Surface Integrity of Ti-6Al-4V Alloy through Cryogenic Burnishing" *Procedia CIRP*, 13 (2014); pp. 243-8, doi: [10.1016/j.procir.2014.04.042](https://doi.org/10.1016/j.procir.2014.04.042)
4. **J. Schoop**, F. Ambrosy, F. Zanger, V. Schulze, I.S. Jawahir and T.J. Balk. "Increased Surface Integrity in Porous Tungsten from Cryogenic Machining with Cermet Cutting Tool" *Materials and Manufacturing Processes*, (2016); pp. 1-9, doi: [10.1080/10426914.2015.1048467](https://doi.org/10.1080/10426914.2015.1048467)
5. D. Busbaber, **J. Schoop**, I. S. Jawahir and T. J. Balk. "Observations on Cutting Edge Radius Effects in Cryogenic Machining of Porous Tungsten" *Procedia of the 16th International Vacuum Electronics Conference*, IEEE International (2015); pp. 1-2, doi: [10.1109/IVEC.2015.7223754](https://doi.org/10.1109/IVEC.2015.7223754)

SYNERGYSTIC ACTIVITIES

Education

- **Helped develop curriculum and outreach materials as part of the Ohio NIST MEP Program** (Manufacturing Extension Partnership) at TechSolve to educate small Ohio manufacturers
- Designed and implemented an **online education laboratory module** for graduate level "Modeling of Manufacturing Processes" class
- **Teaching of 6 different courses** at both graduate and undergraduate level, across a range of topics ranging from Materials Characterization to Sustainable Manufacturing
- **Mentored over 50 graduate and undergraduate students**

Service

- **Coordinated over 100 academic/industry projects** as part of a major public-private partnership (NNMI) institute proposal (DOE REMADE)
- **Member of organizing committee for the 2018 CIRP 16th GCSM** (Global Conference on Sustainable Manufacturing), with a particular focus on industry attendance and engagement

Development of New Scientific Tools and Techniques

- Developing **new metrics for holistic process and product sustainability assessment**
- Developing **cryogenic hybrid cooling/lubrication**, to enable sustainable, near-dry machining

International Collaboration

- Engaged in several **international collaborative research projects** with high level German universities (RWTH WZL Aachen: Prof. Klocke, IFW Hannover: Prof. Denkena, WBK Karlsruhe: Prof. Schulze)