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Proceedings of the Third International Workshop on

Semantic Materials Science

**Harnessing the Power of Semantic Web Technologies
in Materials Science**

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Preface

Advanced technological solutions play a vital role in leveraging the potential of data and driving innovative research. However, the compatibility issues arising from different formats and structures of scientific data hinder progress in data generation, organization, storage, and sharing. To address these challenges, interoperability and efficient data access and analysis automation are crucial. The Semantic Web emerges as a powerful solution to overcome these obstacles.

Expanding and adapting Semantic Web technologies to the Materials Science domain can significantly enhance research outcomes by enabling the uniform consideration, integration, and analysis of heterogeneous data from diverse sources and formats. Implementing these technologies can improve the traceability and reproducibility of scientific procedures, experiments, and simulations. It also facilitates automatable data management solutions and empowers researchers to answer scientific inquiries using semantic queries. Moreover, machine learning methods can benefit from enhanced data completeness and coherence.

The primary objective of this workshop was to gather professionals in Semantic Web and in Materials Science and Engineering to show the recent advances in the use of Semantic Web technologies for Materials Science and Engineering, as well as provide a platform for discussing issues, finding collaboration opportunities and developing a community for this interdisciplinary field.

The workshop received 16 submissions in response to an open call for papers. Reflecting the growing interest in research at the intersection of the Semantic Web and Materials Science, this third edition of SeMatS saw both a notable increase in submissions compared to the previous two editions (11 in 2024 and 6 in 2025), and diverse topics across *Semantic Resources for Materials Science, Knowledge Engineering and Construction*, and *Infrastructure and Application for Semantic Materials Science*.

Program committee members were given one week to bid on the papers they preferred to review, and papers were then assigned considering conflicts of interest and according to a balanced and fair workload for the reviewers. Submissions that have workshop organizers as co-authors were handled by other workshop organizers. Reviewers assessed each paper on its relevance to the workshop topics, originality, technical soundness, and clarity of presentation. Each submission was reviewed by at least two reviewers, and papers with diverging reviews received an additional review. After the reviews, the workshop chairs discussed each paper and made the final decisions based on the reviewers' comments. Twelve papers were accepted including ten regular papers and two short papers with an acceptance rate of 75%. Authors of accepted papers were asked to revise their papers according to the reviewers' comments, and the workshop chairs checked the final versions.

We would like to express our sincere gratitude to all authors for their submissions, which

reflect current research in the field of semantic materials science. Furthermore, we would like to thank all members of the SeMatS program committee for their expertise and commitment to providing careful, constructive reviews and comments.

Finally, we extend our thanks to Andrei Ciortea and Ilaria Tiddi, the workshop chairs of the 25th International Semantic Web Conference (ISWC 2026), for their continuous support during the organization of the workshop.

October 2026

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Table of Contents

Long Papers

An Ontology for Machine Learning Interatomic Potentials <i>Daniel Hernández, Jong Hyun Jung, Yuji Ikeda, Yongliang Ou, Pranav Kumar, Tom Schächtel, Wenchuan Liu, Xin Li, Xi Zhang, Xiang Xu, Lifang Zhu, Fritz Körmann, Steffen Staab and Blazej Grabowski</i>	1
Semantic Enrichment of Additive Manufacturing Technology Data for Machine Learning-based Optimization of Laser Beam Powder Bed Fusion Process <i>Katsiaryna Kosarava and Bartłomiej Adam Wysocki</i>	17
Large Language Models for Creating BFO-Compliant Taxonomies from Structured Texts: A Demonstration on Tensile Testing Taxonomy <i>Hossein Beygi Nasrabadi, Farzaneh Mahdavi, Jörg Waitelonis and Harald Sack</i>	29
Automatically Building and Updating a Knowledge Graph of MLIP Models <i>Alexis Beer, Liudmyla Klochko and Mathieu d'Aquin</i>	41
Towards Object-Oriented Linked Data Profiles for Material Science <i>Simon Stier, Lukas Gold, Matthias Albert Popp, Simon Feiler, Gerhard Goldbeck, Yoav Nahshon, Andreas Räder, Jesper Friis, Simon Clark and Patrick Lambrix</i>	53
Mined from Scientific Literature: Process Schemas for Atomic Layer Deposition and Etching in Materials Science <i>Sameer Sadraddin, Eleni Poupaki, Alex Watkins, Bora Karasulu, Adriaan J.M. Mackus, Erwin Kessels, Sören Auer and Jennifer D'Souza</i>	66
The State of Uncertainty Representation in Copolymer Chemistry Knowledge Artifacts <i>Sarah T. Tüzün and Birgitta König-Ries</i>	84

Real-world Application of MDS-Onto: Ontology-driven Knowledge Graphs to Accelerate Discovery in Materials Science

Erika I. Barcelos, Ozan Dernek, Ethan D. Frakes, Rishabh Kundu, Van D. Tran, Holly L. Schreiber, Redad Mehdi, Shawn Liang, Quynh D. Tran, Yinghui Wu, Mengjie Li, Laura S. Bruckman and Roger H. French 98

Semantic Materials Science for Large Scale Molecular Representation Learning

Quynh D. Tran, Meredith A. Francis, Isabella M. Giammattei, Holly L. Schreiber, Katherine Q. Karkosiak, Erika I. Barcelos, Ozan Dernek, Laura S. Bruckman, Yinghui Wu and Roger H. French 110

The PolyLab Ontology - A Semantic Model of Laboratory Processes and Their Plans

Marta Dembska, Martin Held and Sirko Schindler 124

Short Papers

Iterative AI-Assisted Ontology Engineering: Lessons Learned from Developing the CASTON ontology for Metal Casting, Materials and Manufacturing

He Tan, Ziyu Li, Xuan Liu and Anders E.W. Jarfors 138

The Federated Data Space Infrastructure of Materials Commons: Concept and Architecture

Simon Stier, Marek Cebecauer, Jakub Klímek, Jörg Schaarschmidt, Andreas Räder, Natalia Bedoya-Martinez, Rickard Armiento and Lukas Gold 144