

Furukawa Group SEMINAR

" Thermoplastic nanocomposites for additive manufacturing applications "



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Kyoto University KUIAS (iCeMS Main Building)
2F Seminar Room (#A207)

ABSTRACT

Additive Manufacturing (AM) as a group of techniques capable to produce complex end-use parts directly from a 3D CAD mode benefits in the unique ability to produce complex geometries with great design freedom. Powder bed fusion methods as well as fused deposition modeling (represented by laser sintering (LS) and 3D printing, respectively), with many clear benefits over conventional manufacturing methods, have a major drawback of limited material selection obstructing broader application in industry. Studies carried out in the recent times¹ show potential development of both AM branches, also indicating challenges and limitations².

Promising trends in thermoplastic nanocomposite processing^{3,4} and potential adaptation of such materials in AM will be discussed. Aspects of blends⁵ and filler hybrid systems⁶ as well as attempts of solving key problems in LS feedstock selection (*e.g.* laser energy absorption) directs the future focus in applied thermoplastic materials research.

REFERENCES

- [1] Li *et al.* *J. Mater. Sci. Technol.* **2019**, 35, 242.
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- [5] Węgrzyn *et al.* *J. Appl. Polym. Sci.* **2014**, 131, 40271.
- [6] Węgrzyn *et al.* *J. Appl. Polym. Sci.* **2015**, 132, 42793.

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