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特別講演会のお知らせ

2026 年 11 月 12 日（木）15:00–16:30（講演: 60 min, Q&A: 30 min）

参加者申し込みフォーム：https://forms.gle/8mQfJNv9HX7kAtUV6

Digital Disruption of Composites Manufacturing: From Process Simulation to Model Based Systems Engineering

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Composite materials and structures are an excellent example of how engineering practice often outpaces scientific knowledge. Born in the analog world of the 1960s, carbon-fibre composites manufacturing and design practice is a complex and often fragile construct that is primarily driven by the need to manage uncertainty and risk. In the last two decades, predictive process simulation tools, supported by characterized materials and standardized workflows, are rapidly changing this paradigm, with the full benefits yet to come.

Examples of the transition from academic research to industrial practice are now increasingly evident. For example, the latest edition of Composite Materials Handbook 17, the primary guidance document for the aerospace composites community, now includes a major chapter on process simulation, and major material suppliers are actively highlighting the availability of material models for process simulation.

In this presentation, we chart the history of process simulation and in-process measurement & control using industrial application examples tied back to scientific fundamentals. We use examples from our own research and technology innovation, tracking the history of the development of COMPRO and RAVEN, which are two software packages widely used in industry today, and tie their capabilities back to fundamental process science. Finally, current innovations and future opportunities and needs will be discussed in the context of the broader thrusts of Model Based Systems Engineering (MBSE), digital threads, and of course AI.