

FRIS

Hub 第12回 FRIS ハブミーティング

Meeting **12**

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THU 11:00 -12:00

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参加申し込みフォーム



What future for plastics?

プラスチックの将来は？

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In the 1950's, plastics was thought as being a revolution while today, they are only seen as massive pollution. However, can we really stop using them? Because they exhibit very interesting properties among which wear resistance, or corrosion resistance, it comes to a hand when we wish to protect metallic structures against environmental aggressions.

Several ways exist to manufacture coatings. However, an innovative solution is by cold-spray. This process includes the solid-state deposition of particles on substrates leading to strong bonding at the interface of the two materials and the formation of a coating. During cold-spray, particles are accelerated and heated inside the nozzle before impacting the substrate. To successfully be deposited, the particles need to be deposited plastically. However, it is difficult to evaluate the mechanical behavior of micrometer particles submitted to very high strain rates (velocity). In this study, we develop a numerical methodology to evaluate the history and deformation behavior of polymers submitted to cold-spray experiments. One of our objectives is to better understand the deformation behavior of polymers submitted to very high strain rates. From a material science point of view, the mechanical behavior of small structures at very large strain rates is a challenge both experimentally and numerically. Here, we propose a method to understand the polymer deformation behavior during cold-spray process based on numerical findings.

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FRIS Hub Meeting HP
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