

# Data driven approaches to design damage tolerant Dual-phase steel microstructures (12 min talk + 3 min discussion)

*Wednesday, 14 April 2021 15:15 (15 minutes)*

Identifying representations and characterizing the microstructure features is crucial for developing the damage-tolerant dual-phase steels. These representations serve as variables to establish a structure-property relationship and to design microstructures of desired mechanical property. However, the complex nature of the DP steel microstructure, poses a challenge and the existing characterization methods are limited in encoding this information using the handcrafted features.

To tackle this challenge, I will introduce machine learning models

1. To extract features automatically from synthetic DP steel images and represent the microstructure in low dimensional latent space.
2. To conditionally generate damage-tolerant microstructure patterns with desired yield stress.

## Poster title

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