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【735】 Targeted use of residual stress in electrical steel to increase energy efficiency

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Climate change necessitates a reduction of fossil fuel usage. Particularly, transport relies primarily on fossil fuel. Electric vehicles are key to reduce this reliance. As part of an interdisciplinary project, we aim to develop more efficient electric drives using magnetic flux guidance in the rotor by targeted residual stress instead of cutouts. Increasing the maximum achievable rotational speed of electric drives by increasing the mechanical stability. Stacked electrical steel sheets compose the rotor, in which the magnetic flux needs to be guided. Using neutron grating interferometry, we can directly visualize the magnetic flux guidance, analyze local magnetic properties in the bulk and help refine the introduction of residual stress.

Theoretical Work

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