

Dissertation press release

11.08.2020

## Higher Efficiency Electrical Machines – What’s Preventing?

<b>Title of the dissertation</b>	Effect of Manufacturing Processes on Electrical Machine’s Performance
<b>Contents of the dissertation</b>	<p>The usage of electrical machines in the form of motors and generators is increasing in traditional industrial applications as well as emerging areas such as electric vehicles. Increasing demand for electrical machines coupled with stricter environmental norms is pressing the need to develop high-efficiency machines. The efficiency of an electrical machine is closely linked with the associated losses. Core losses of an electrical machine contribute a significant part of the total losses. However, there are major challenges currently exist which prevent accurate estimation of these losses; hence obstructing the efforts for efficiency improvement.</p> <p>This research work focuses on studying the effects of manufacturing processes such as cutting, welding, and shrink fitting on the core losses of electrical machines. The corresponding loss models are developed and validated against the measurements of the stator core losses of an industrial motor. Furthermore, two separate methods are proposed for efficient finite element modeling of electrical machines. A better understanding and accurate estimation of the core losses should pave the path for high-efficiency machines in the future, thus contributing to the sustainable development of the world.</p>
<b>Field of the dissertation</b>	Electromechanics
<b>Doctoral candidate</b>	Ravi Sundaria, M.Sc. (Tech.)
<b>Time of the defence</b>	04.09.2020 time 12:00 noon
<b>Place of the defence</b>	Remote link “ <a href="https://aalto.zoom.us/j/69323898150">https://aalto.zoom.us/j/69323898150</a> ”
<b>Opponent</b>	Professor Michael Galea, University of Nottingham Ningbo, China
<b>Custos</b>	Professor Anouar Belahcen, Aalto University School of Electrical Engineering, Department of Electrical Engineering and Automation.
<b>Electronic dissertation</b>	<a href="https://aaltodoc.aalto.fi/handle/123456789/45646">https://aaltodoc.aalto.fi/handle/123456789/45646</a>
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