

ENERGY INNOVATION FORUM

Dartmouth

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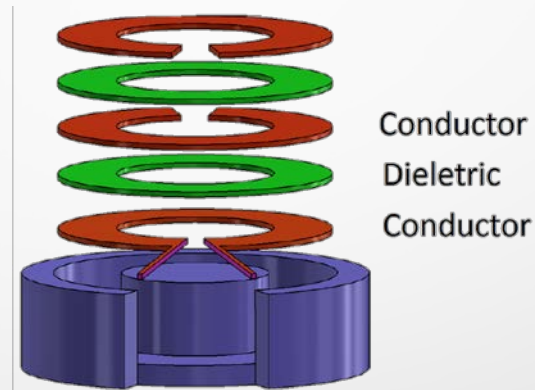
RESEARCH AREA

- Wireless power transfer (WPT)
 - Consumer devices, electric vehicles, and biomedical devices
 - Fast growing industry
 - 144 million units sold in 2015 (2.4x more than 2014) (IHS)
 - Estimated worth in 2020 is \$13.7 billion (Markets and Markets)
 - Estimated 2 billion units sold in 2020 (IHS)
- Achieving market estimates requires increased WPT adoption, which depends on range, efficiency, and size of transmission coils.

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LATEST RESEARCH RELEVANT TO COMPANIES

- New structure* for sending and receiving wireless power
 - Replaces two separate components from existing WPT systems
 - Utilizes equal current sharing between thin foil conductors to achieve
 - Increased efficiency
 - Increased range
 - Decreased coil size



- Made from low cost materials

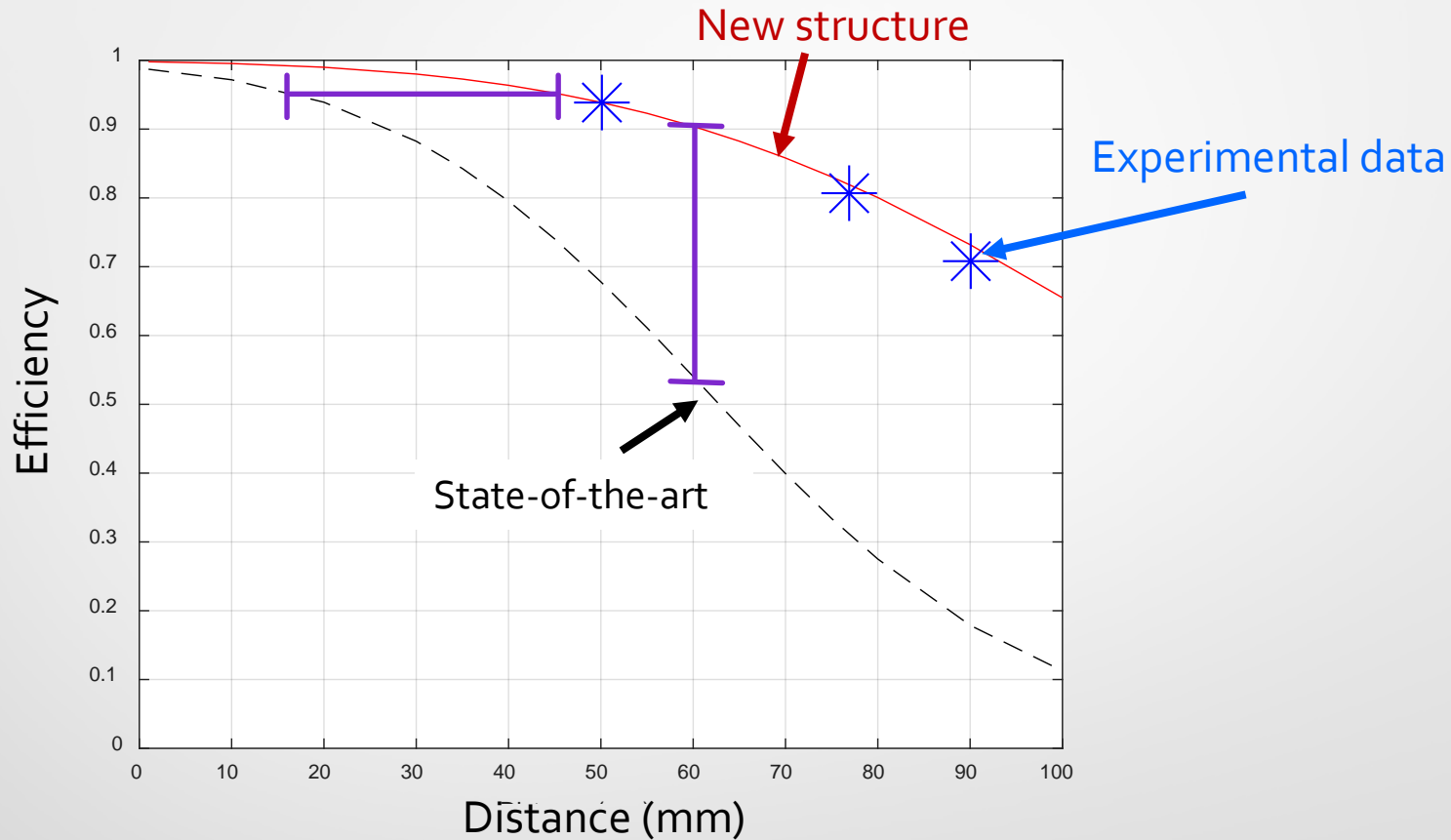
- Thin foil
- Dielectric materials (Polypropylene, PTFE, etc.)



* patent pending

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LATEST RESEARCH RELEVANT TO COMPANIES



- 2x range with $\eta > 94\%$
- 4.5x reduction in loss at 60 mm

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IMPACT OF RESEARCH

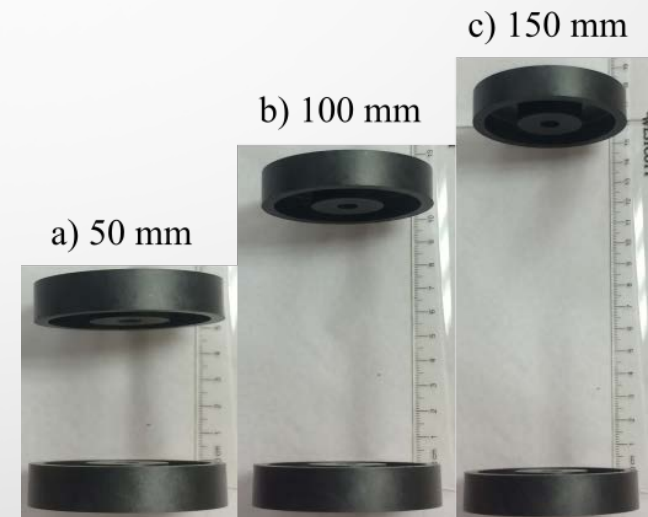
- Impact of new low-cost wireless structure
 - Small size → fits into more products
 - Long range → meets market need for more convenient charging
 - High-efficiency → new high-performance applications



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NEXT STEPS AND NEEDS

- Key required development
 - Low-cost manufacturing techniques
- Next steps
 - Manufacturing partner
 - Funding to hire employees to further develop business model



New Structure ($\eta\%$)	94%	65%	25%
State-of-the-art ($\eta\%$)	67%	11%	2%