High Temperature superconducting wires on Sapphire (Ramot)

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Next generation of superconducting wires - double-sided coated superconductor tapes on sapphire that will be much simpler to fabricate, will have a lower cost, and much lower AC losses compared with current technologies. We are targeting the electricity market addressing a growing problem of blackouts due to power surges. Using our innovation to introduce revolutionary superconducting tapes for a superconducting Fault Current Limiter (FCL) that protects high voltage (~20kV) equipment against power surges. Some of the key characteristics are:

• Coating of flexible sapphire ribbons or wires with a high quality superconducting layer (YBCO)
• Unique technology overcomes critical barriers that have impeded development of superconducting FCL solutions
• Significant benefits of technology relative to alternatives:
o Increased power density by 100%
o Lowering the cost per 1MW FCL by 75%
o Reducing AC losses by 3 orders of magnitude
o Faster switching times by a factor of 10-100

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