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Advanced Organic Molecules for New Generation Solar Cells: from Idea to Commercialization

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This lecture will cover results of our recent investigations in the field of molecular engineering of small molecule hole transporting materials for perovskite solar cells. Our group has been successful in creating several classes of novel organic charge transporting materials, which are on a par with or even better than Spiro-OMeTAD. The molecularly engineered new hole transporting materials were synthesized in one or two steps from commercially available and relatively inexpensive starting reagents, resulting in up to several fold cost reduction of the final product compared with Spiro-OMeTAD. High solubility in organic solvents and ease of preparation makes these molecules very appealing for commercial prospects of photovoltaic devices.