# Recipients of the Newton Award for Transformative Ideas during the COVID-19 Pandemic

<table>
<thead>
<tr>
<th>Proposal Title</th>
<th>PI</th>
<th>Institution</th>
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<tr>
<td>A Microscopic Theory of Entropic Bonding</td>
<td>Sharon Glotzer</td>
<td>University of Michigan</td>
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<tr>
<td>Space-time particle wave packets: New class of matter in motion</td>
<td>Ayman Abouraddy</td>
<td>University of Central Florida</td>
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<tr>
<td>Building Brains Using Synthetic Biology Across Scales</td>
<td>Jennifer Schwarz</td>
<td>Syracuse</td>
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<tr>
<td>Understanding and Re-engineering Epigenetic Cell Memory: A Theory-driven Approach</td>
<td>Domitilla del Vecchio</td>
<td>MIT</td>
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<td>Recovering information from behind the black hole horizon</td>
<td>Douglas Stanford</td>
<td>Stanford University</td>
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<td>Hyperspectral communication channels for receiving information from fielded natural and engineered microbial sensors</td>
<td>Chris Voigt</td>
<td>MIT</td>
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<td>Uncovering Hidden Dynamics by Exploiting the Algebra of Path Signatures</td>
<td>Kavita Ramanan</td>
<td>Brown University</td>
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<td>New principles of amplification of ultrashort pulses of coherent light by non-equilibrium free-carrier plasma in semiconductor crystals</td>
<td>Vitaly Gruzdev</td>
<td>University of New Mexico</td>
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<td>Thermonuclear Fusion in a Cavitating Fluid Whose Incompressibility Arises From Fermi Repulsion</td>
<td>Seth Putterman</td>
<td>University of California Los Angeles</td>
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<td>Pathways to Complexity with ‘Imperfect’ Nanoparticles, Part I</td>
<td>Nick Kotov</td>
<td>University of Michigan</td>
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<tr>
<td>Pathways to Complexity with “Imperfect” Nanoparticles, Part II</td>
<td>Xiaoming Mao</td>
<td>University of Michigan</td>
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<td>Geometric Structure-Preserving Model Reduction for Large-Scale Interconnected Systems: Part I</td>
<td>Melvin Leok</td>
<td>University of California, San Diego</td>
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<tr>
<td>Geometric Structure-Preserving Model Reduction for Large-Scale Interconnected Systems: Part II</td>
<td>Boris Kramer</td>
<td>University of California San Diego</td>
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