Lunar Space Elevators for Cislunar Space Development
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We propose a revolutionary method for the development of cislunar space. The concept combines a unique construction system for lunar resource recovery, lunar space elevators with solar-powered robotic climbing vehicles to release lunar material beyond the Lagrangian points, and robotic space vehicles to carry the lunar material into high Earth orbit for cislunar development. The construction system creates adaptable sets of identical geometric shapes of small blocks and wires made from locally available lunar materials, using automated block assembly and wire forming to construct complex shapes. The lunar space elevators provide non-rocket transportation of these lunar products from polar and equatorial mining sites into Earth orbit. This architecture is a new way to create a lunar base for robotic and human operations on the surface. A lunar space elevator using existing high-strength composites with a lifting capacity of 2000 kg at the base equipped with solar-powered capsules moving at 100 km/hour could lift 386,000 kg/yr of lunar material into high Earth orbit. Since current launch costs are $10,000/kg, this material would be worth billions of dollars per year, creating a new era of space development.