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【13】Compound semiconductor nanowires for next generation solar cells and quantum technologies

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Nanowires are filamentary crystals with a tailored diameter in the range of few tens of nanometers. Their particular morphology and size renders them particularly attractive for a manifold of applications and fundamental experiments. We present recent results in the area of compound semiconductor nanowires. We review the fundamental properties that render them attractive for solar cells and quantum technologies. We will show their enhanced light absorption results in materials savings up to a factor 1000 thanks to photonic properties and enahnced carrier collection.Finally, we propose a novel setting for the growth of nanowire networks in a scalable manner. So far, these structures have been considered for topological schemes of quantum computing (using Majorana Fermions that are topologically protected).

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