1. Multiparticle current density
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2. Scattering of a particle by a potential
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3. General properties of angular momentum
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4. Symmetry properties in quantum mechanics and conservation laws
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Textbook

Quantum Mechanics, 2\textsuperscript{nd} edition
E. Merzbacher

Reference books

Introduction to the Quantum Theory of Scattering
L.S. Rodberg and R.M. Thaler

Quantum Mechanics
Albert Messiah
John Wiley & Sons, New York, 1966

Quantum Mechanics, 2\textsuperscript{nd} edition
A.S. Davydov

Angular Momentum
R.N. Zare
John Wiley & Sons, New York, 1988