

<b>Module:</b>	<b>Elective Advanced Lectures: Theoretical Physics</b>
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Module No.: physics70c

<b>Course:</b>	 <b>Quark Distributions Functions (T)</b>
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Course No.: physics7506

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture	English	2	3	WT

**Requirements for Participation:**

**Preparation:**

Quantum Field Theory (physics755 or equivalent)

**Form of Testing and Examination:**

oral examination

**Length of Course:**

1 semester

**Aims of the Course:**

By the end of the course, the student should be able to understand the formal parton model, renormalization of parton distributions, and current attempts to compute them on the lattice.

**Contents of the Course:**

Deep Inelastic Scattering; The Operator Product Expansion; Basics of the parton model; The formal parton model; Quark distributions and quasi-quark distributions; One loop corrections and renormalization; Lattice attempts to compute PDF

**Recommended Literature:**

Elliot Leader, Enrico Predazzi: An introduction to gauge theories and modern particle physics. Cambridge Monographs on Particle physics, Nuclear Physics and Cosmology 1996.

John Collins: Foundations of Perturbative QCD.

Cambridge Monographs on Particle physics, Nuclear Physics and Cosmology 2011.

Anthony W. Thomas, Wolfram Weise: The Structure of the Nucleon. Wiley-VCH Verlag Berlin 2001.

R. K. Ellis, W. J. Stirling, B. R. Webber: QCD and Collider Physics.

Cambridge Monographs on Particle physics, Nuclear Physics and Cosmology 2003.