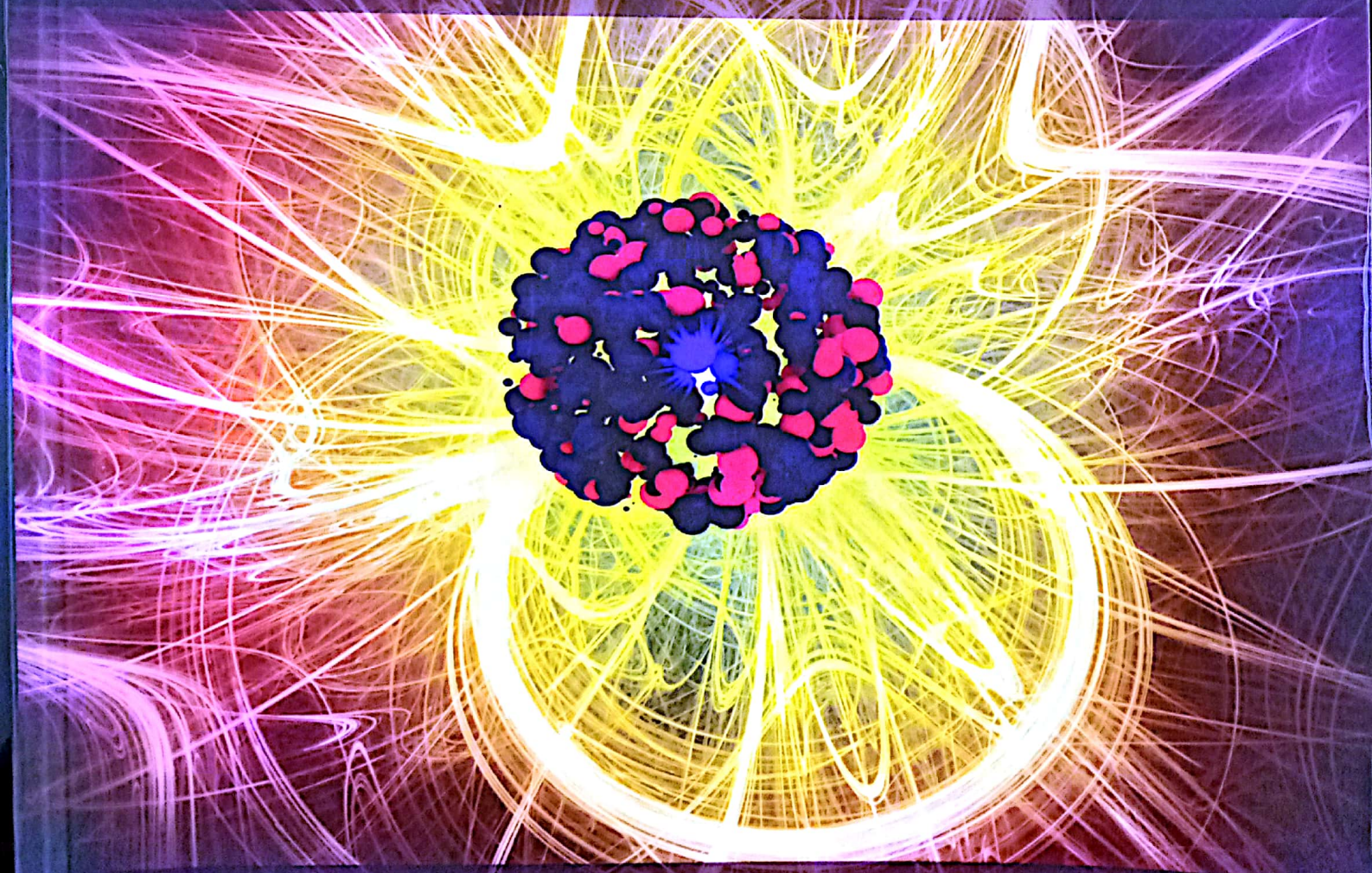
HADRON STRUCTURE FUNCTIONS FROM EVOLUTION EQUATIONS

PHENOMENOLOGICAL STUDY OF DGLAP EVOLUTION EQUATION AND PARTON DISTRIBUTION FUNCTIONS



DR. RANJIT BAISHYA

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Contents

HADRON STRUCTURE FUNCTION FROM EVOLUTION EQUATIONS

This book deals with proton, neutron and deuteron structure functions determined from deep inelastic scattering experiments approximated for high Q^2 and small-x region. Structure functions have been calculated from solutions of well known DGLAP evolution equations which were deduced from QCD. Theoretical predictions of t and x-evolutions of structure functions at small-x region have been compared with experimental data and parameterizations. In the first part of the book, the unpolarized singlet and non-singlet structure functions have been obtained up to next-to-next-to-leading order. Similarly, in the second part, the polarized singlet and non-singlet structure functions and in the third part the unpolarized and polarized gluon distribution function have been obtained up to next-to-leading order and obtained results have been compared with various leading experimental data as well as recent global parameterizations.

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