

LDRD Q1

LD2506

Gravitational Form Factor

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January 21st 2025

Q1 meeting

Progress report LDRD 2506

- Milestones

- Fitting with Neural Network

- NN-25-1 Test the constrained NN fit on existing data including LQCD constraint from 1st year (1 month)
 - NN-25-2 Request computing resources for the training of the NN (1 month)
 - NN-25-3 Training of the NN and extraction of the GFFs (5 months)
Optimization of parameters of Neural Network
 - NN-25-4 Generation of DDVCS and TCS pseudo data with PARTONS and CLAS12 and SoLID Simulation (3 month)
 - NN-25-5 Evaluation of the potential improvement on the GFF extraction when using DDVCS and TCS pseudo data at 11 and 22 GeV (1 months)
 - NN-25-6 Publication of GFF fitting (2 months)



- LQCD calculation of GFFs

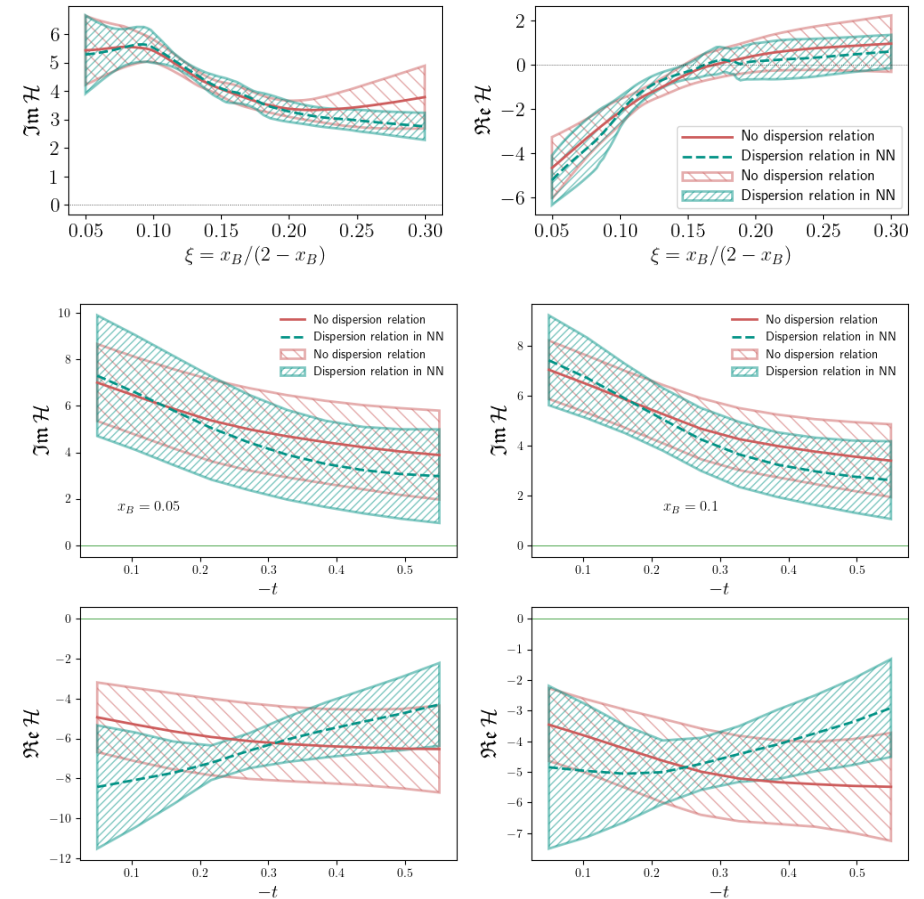
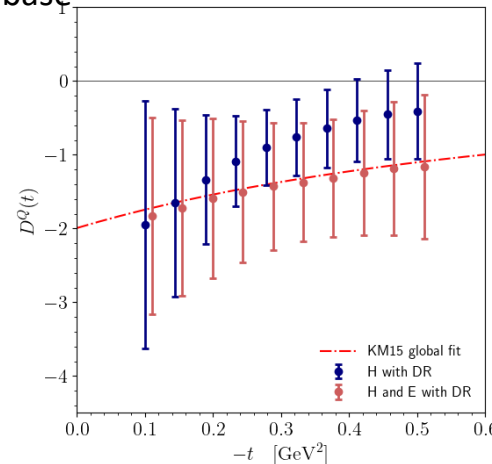
- LQCD-25-1: Calculation of the disconnected diagrams needed for the isosinglet proton distributions (3 months)
 - LQCD-25-2: First calculation of isoscalar GFFs of the proton (9 months)

- Will submit paper on exclusive data database in one or two months

- Issues

- LQCD data included in database but only isovector contribution from LQCD data contribution might be small
 - Delay ordering new computer (might need to lower specs)
 - Update on farm broke Gepard installation – need to reinstall missing packages

Team :
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Compton Form Factors and D terms extracted using 6 and 11 GeV CLAS data

