

# 2<sup>nd</sup> Workshop on the QCD Structure of the Nucleon

June 12–16, 2006



A. Pomodoro, *Sfera n. 6*

"Spheres are the perfect and magical solids... which I want to crack in order to trace and discover their internal ferments, so mysterious and alive, monstrous but pure."

Congress Center  
VILLA MONDRAGONE  
Università degli studi di Roma Tor Vergata  
Monte Porzio Catone, Rome, Italy



# PROGRAM

**Monday, June 12**

**12:30-13:20 Registration and Brunch at Villa Mondragone**

## **Opening Session**

**Chair: Enzo De Sanctis (Frascati)**

13:30-13:40	Welcome	
13:40-14:00	Maria Curatolo (Frascati)	The LNF road map
14:05-14:35	Terry Sloan (Lancaster)	Electron-Nucleon scattering from EMC to H1

## **Session 1-I: Exclusive Reactions and Generalized Parton Distributions**

**Chair: Enzo De Sanctis (Frascati)**

14:40-15:20	Markus Diehl (DESY)	GPDs for non-experts
15:25-16:05	Christian Weiss (JLab)	GPDs for experts (technical review)

*16:15-16:45 Coffee Break*

16:45-17:05	Matthias Burkardt (N.Mexico)	Hadron tomography
17:10-17:50	Paul Rakow (Liverpool)	GPD calculations on the Lattice (pedagogical)
17:55-18:35	Philipp Haegler (Munich)	GPDs from Lattice QCD



**Tuesday, June 13**

**Session 1-II: Exclusive Reactions and Generalized Parton Distributions**

**Chair: Peter Kroll (Wuppertal)**

09:00-09:40 Thorsten Feldmann (Siegen) Highlights from Trento Workshop  
09:45-10:25 Xavier Janssen (Bruxelles) H1&ZEUS results on exclusive reactions

*10:30-11:00 Coffee Break*

11:00-11:40 Cynthia Hadjidakis (Frascati) HERMES results on exclusive reactions  
11:45-12:05 Andrzej Sandacz (Warsaw) Exclusive  $\rho$ -production at COMPASS  
12:10-12:30 Charles Hyde-Wright (ODU) JLab-Hall A results on DVCS  
12:35-12:55 Latifa Elouadhiri (JLab) Report from JLab-Hall B  
presented by Harut Avakian  
13:00-13:20 Kees de Jager (JLab) Wide Angle Compton Scattering

*13:30-14:30 Lunch*

**Session 1-III: Exclusive Reactions and Generalized Parton Distributions**

**Chair: Klaus Goëke (Bochum)**

14:30-14:50 Dieter Muller (Arizona) DVCS on deuteron  
14:55-15:15 Simonetta Liuti (Virginia) Space-time Picture of Nuclear Effects in QCD  
15:20-15:35 Petr Zavada (Prague) Structure functions and intrinsic quark orbital motion  
15:40-15:55 Zhenyu Ye (DESY) Transverse Target-Spin Asymmetry associated with DVCS on the proton  
16:00-16:15 Armine Rostomyan (DESY) Transverse Target Spin Asymmetry of exclusive  $\rho^0$ -mesons at HERMES

*16:20-16:50 Coffee Break*

16:50-17:05 Manuel Pincetti (Pavia) Chiral-Odd and Transversity in Light Front Constituent Quark Models  
17:10-17:25 Asmita Mukherjee (Mumbai) Hadron Optics: Patterns in DVCS  
17:30-17:45 Elvio Di Salvo (Genova) The QCD parton model: a useful approximation



Wednesday, June 14

**Session 2-I: Distribution and Fragmentation Functions. Transversity**

**Chair: Mauro Anselmino (Torino)**

09:00-09:40 Alessandro Bacchetta (DESY) TMD and Transversity for non-experts  
09:45-10:25 Andreas Metz (Bochum) TMD and Transversity for experts

10:30-11:00 *Coffee Break*

11:00-11:40 Gunar Schnell (Gent) HERMES results on TMD and Transversity  
11:45-12:25 Anna Martin (Trieste) Transverse spin measurements in COMPASS  
12:30-12:50 Steve Heppelmann (Penn State) RHIC results on Transversity  
12:55-13:15 Ralf Seidl (Urbana) Chiral-odd Fragmentation functions at Belle

13:20-14:20 *Lunch*

**Session 2-II: Distribution and Fragmentation Functions. Transversity**

**Chair: Franco Bradamante (Trieste)**

14:20-14:40 Harut Avakian (JLab) Studies on transverse spin effects at JLab  
14:45-15:00 Ulrike Elschenbroich (Gent) The Transverse Spin Effects in Kaon Production at HERMES  
15:05-15:20 Peter Schweitzer (Bochum) Azimuthal asymmetries in semi-inclusive DIS and electron positron annihilation  
15:25-15:40 Leonard Gamberg (Penn State Berks) Naive T-Odd Correlations in Single Spin and Azimuthal Asymmetries  
15:45-16:00 Aram Kotzinian (Torino) Double spin azimuthal asymmetry  $A_{LT}$  and  $A_{LL}$  in semi-inclusive DIS

16:05-16:35 *Coffee Break*

**16:35-18:30 Round Table: Contributions on different field on how to investigate the quark orbital angular momentum.**

**Convenor: Delia Hasch (Frascati)**

- Introduction [Delia Hasch (Frascati)]
- What do we already know about the OAM [Andy Miller (TRIUMF)]
- What can we learn on OAM from exclusive processes [Markus Diehl (DESY), theory; Harut Avakian (JLab), experiments]
- What can we learn on OAM from processes involving TMDs [Umberto D'Alesio (Cagliari), theory; Christine Aidala (Amherst), experiments]
- Can we link the information from exclusive processes and from TMD measurements? [Matthias Burkardt (N. Mexico)]



Thursday, June 15

**Session 2-III: Distribution and Fragmentation Functions. Transversity.**

**Chair: Piet Mulders (Amsterdam)**

09:00-09:20	Simon Albino (DESY)	Status on Unpolarized Fragmentation Functions
09:25-09:40	Cristian Pisano (Hamburg)	The QCD evolution of $F_p^2$ at small $x$
09:45-10:05	Lara De Nardo (DESY)	Helicity distributions at HERMES
10:10-10:25	Cedran Bomhof (Amsterdam)	Universality of single spin asymmetries in hard processes

*10:30-11:00 Coffee Break*

11:00-11:30	Naohito Saito (Kyoto)	JPARC
11:35-11:50	Anatoly Efremov (JINR) presented by P. Schweitzer	The Sivers Effect in SIDIS and in Drell-Yan Process
11:55-12:10	Gary Goldstein (Tufts)	Azimuthal Asymmetries in Unpolarized $\bar{p}p$ Drell-Yan Processes and Transversity-odd Distributions
12:15-12:30	Marco Radici (Pavia)	Transversity and inclusive $2\pi$ -production
12:35-12:50	Francesca Giordano (Ferrara)	Evidence for a single spin asymmetry in $2\pi$ semi-inclusive DIS on a transversely polarized hydrogen target
12:55-13:10	Federico A. Ceccopieri (Parma)	Transverse momentum distributions in semi-inclusive DIS

**13:15 Picture**

*13:30-14:30 Lunch*

**Session 3-I: Future Measurements and Facilities**

**Chair: Kees de Jager (JLab)**

14:30-14:50	Horst Fischer (Freiburg)	Future Muon/Pion-Nucleon scattering at CERN
14:55-15:15	Ralf Kaiser (Glasgow)	Future HERMES Physics with GPDs
15:20-15:40	V. Burkert (JLab) presented by H. Avakian	GPDs future at JLab
15:45-16:05	Xiaodong Jiang (JLab)	Jefferson Lab's perspective on transversity measurements at 6 GeV and 12 GeV

*16:10-16:40 Coffee Break*

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|-------------|-------------------------------|---|
| 16:40-16:55 | Maria Elena Boglione (Torino) | SIDIS cross sections and Spin Asymmetries: predictions for ongoing and future experiments |
| 17:00-17:15 | Christine Aidala (Amherst)    | Accessing Transversity via Collins and interference fragmentation at RHIC                 |
| 17:20-17:35 | Matti Jarvinen (Helsinki)     | Single Spin Asymmetry from pomeron-odderon interference                                   |

## 20:00 Social Dinner at The Casina Valadier in Rome



**Casina Valadier** rises up on the ancient Collis Hortulorum, the highest point of Pincio, where in the past great Roman families owned the most sumptuous and vast gardens in Rome. It was built between 1816 and 1837 by Giuseppe Valadier, a well-known Roman architect and urban planner, involved in the important restoration of Piazza Del Popolo and Pincio in Rome. Valadier revised in neoclassical style the prior

Casino Della Rota, a 16th century building built on the remains of an ancient Roman cistern.

From the beginning, Casina was planned and built to be used as a meeting place after the manner of French Bistro but not withstanding the incredible beauty of the place and the view, a lot of time was needed to obtain the satisfaction of the Romans, patrons of other famous meeting places such as the Caffè Veneziano on the Corso or Nazzarri in Piazza di Spagna.

Only after the First World War did Casina become the most fashionable place in Rome, a haunt for artists, intellectuals and political figures of the world. In Casina Valadier album of honour there are auto-graphs of celebrated personalities such as Gandhi, King Farouk, Strauss, Pirandello and many more.



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**Friday, June 16**

**Session 3-II: Future Measurements and Facilities**

**Chair: Wolf-Dieter Nowak (DESY-Zeuthen)**

09:00-09:20	Umberto D'Alesio (Cagliari)	TMD Theory, future
09:25-09:45	Paul Newman (Birmingham)	The LHEC (eN@CERN) Project
09:50-10:10	Kees de Jager (JLab)	Electron Light Ion Collider at CEBAF
10:15-10:35	Richard Milner (MIT)	ERHIC

**10:40-11:10 Coffee Break**

11:10-11:30	Helmuth Koch (Bochum)	PANDA at GSI
11:35-11:55	Paola Ferretti Dalpiaz (Ferrara)	PAX at GSI
12:00-12:20	Matthias Grosse Perdekamp (Illinois)	RHIC-II

**Concluding Session**

12:25-12:55	Dennis Sivers (Michigan)	Summary and Outlook
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*13:15-14:15 Lunch*

CONGRESS CENTER  
VILLA MONDRAGONE  
UNIVERSITA' DEGLI STUDI DI ROMA TOR VERGATA



Villa Mondragone is one of the most beautiful "Ville Tuscolane". Owned by the University since 1981 it has, through the centuries, been a theatre of important events as well as the residence of popes and famous families. Emerging from the ruins of the Villa of the Quintili, who were Roman consuls, it was in its maximum splendour during the epoch of the Borghese family. In the 1800's it underwent a period of slow decline until it was finally abandoned. In 1981 it was sold by the Order of the Jesuits to the University. Pope Gregory XIII, whose heraldic dragon led to call the villa "Mondragone", used regularly the villa as summer residence, guest of Cardinal Altemps: here, on February 24, 1582 he promulgated the document (the papal bull "Inter gravissimas") which issued the reform of the calendar now in use and known as Gregorian Calendar.

Courtesy of Centro Congressi e Rappresentanza Villa Mondragone - Università degli Studi di Roma Tor Vergata