

REPORT ON THE GERMAN-TURKISH WORKSHOP IN İSTANBUL AND NUSTAR.TR

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(On Behalf of the NUSTAR.tr Members)



Outline

- Information on/Outcomes from the workshop in Istanbul
- NUSTAR.tr
 - Formation & Group Info
 - Research/Work Interests
 - Status
- Outlook



The poster features a logo at the top right with a stylized 'M' and a crescent moon with a star. Below it, the text reads: 'Deutsch-Türkisches Jahr der Forschung, Bildung und Innovation 2014', 'Türk-Alman Arastırma, Eğitim ve İnovasyon Yılı 2014'. The main title is 'WORKSHOP ON NUCLEAR STRUCTURE, ASTROPHYSICS AND REACTIONS' in a dark grey box, with the dates 'May 14-16, 2014' and location 'Yıldız Technical University, Istanbul-TURKEY' below it. The poster is divided into three columns of names under the headings 'Organizing Committee', 'Scientific Committee', and 'Local Organizing Committee'. At the bottom, there is a section for 'Supporting Organizations' with logos for TÜBİTAK, Yıldız Technical University, Mimar Sinan University, İZAH, İstanbul Zaim Üniversitesi, Sabote University, NUSTAR, and FAIR. A URL is provided at the very bottom: 'URL: https://indico.cern.ch/event/287931/?ovw=True'.

Deutsch-Türkisches Jahr der
Forschung, Bildung und Innovation 2014
Türk-Alman Arastırma,
Eğitim ve İnovasyon Yılı 2014

WORKSHOP
ON
**NUCLEAR STRUCTURE,
ASTROPHYSICS AND REACTIONS**
May 14-16, 2014
Yıldız Technical University, Istanbul-TURKEY

Organizing Committee	Scientific Committee	Local Organizing Committee
KUTSAL BOZKURT (YTÜ)	GIACOMO DE ANGELIS (LNL)	KUBİLAY KUTLU (YTÜ)
NİZAMETTİN ERDURAN (İSZÜ)	İSMAİL BOZTOSUN (AKDENİZ Ü)	ÖZGÜR AVCI (YTÜ)
TUBA ÇONKA NURDAN (TAÜ)	NİZAMETTİN ERDURAN (İSZÜ)	NESLİHAN AYARCI (YTÜ)
FERHAT ÖZOK (MSGSÜ)	SEFA ERTÜRK (NÜ)	KUTSAL BOZKURT (YTÜ)
YAMAÇ PEHLİVAN (MSGSÜ)	JUERGEN GERL (GSI)	EVİRİM GÜRYEL (İ.Ü.)
İSKENDER REYHANCAN (İTÜ)		EMRE KURNAZ (İ.Ü.)
MEHTAP YALÇINKAYA (İÜ)		ESRA YÜKSEL (YTÜ)
TAYLAN YETKİN (YTÜ, CHAIR)		SEMA KÜÇÜKSUCU (MSGSÜ)
		FERHAT ÖZOK (MSGSÜ)
		MEHTAP YALÇINKAYA (İ.Ü.)
		TAYLAN YETKİN (YTÜ)

Supporting Organizations

TÜBİTAK

YILDIZ TEKNİK ÜNİVERSİTESİ

MİMAR SİNAN ÜNİVERSİTESİ 1883

İZAH

İstanbul Zaim Üniversitesi

SABOTE ÜNİVERSİTESİ

NUSTAR

FAIR

URL: <https://indico.cern.ch/event/287931/?ovw=True>

Workshop Goals

1 Introduction of FAIR/NUSTAR to Turkish Community

- ▶ Organizational structure
- ▶ Collaboration
- ▶ Experiments

2 Physics Studies at NUSTAR Experiments

- ▶ Physics Potentials
- ▶ Research Goals
- ▶ Current Activities

3 Activities of Turkish Groups on Nuclear and Particle Physics and Instrumentation

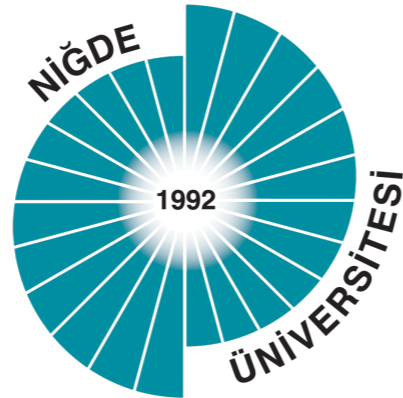
- ▶ Past & Current Activities
- ▶ Info on Lab. Infrastructures

Many discussions and short meetings among interested parties.

Workshop Support



Deutsch-Türkisches Jahr der
Forschung, Bildung und Innovation 2014
Türk-Alman Araştırma,
Eğitim ve İnovasyon Yılı 2014



Workshop Agenda

Wednesday, 14 May 2014

- 09:00 - 10:00 Registration 1h0'
- 10:00 - 10:30 Opening Ceremony 30'
- 10:30 - 10:40 Workshop Logistics 10'
- 10:40 - 11:20 FAIR - An Overview 40'
Speaker: Dr. Inti Lehmann (FAIR - Facility for Antiproton and Ion Research)
- 11:20 - 12:00 Physics and Instrumentation of the NUSTAR Project 40'
Speaker: Juergen Gerl (GSI / FAIR - Facility for Antiproton and Ion Research)
- 12:00 - 12:15 Discussion
- 12:15 - 14:00 LUNCH
- 14:00 - 14:40 The Super-FRS facility 40'
Speaker: Haik Simon (Gesellschaft für Schwerionenforschung mbH (GSI))
- 14:40 - 15:20 The NUSTAR Collaboration and Its Organisation 40'
Speaker: Alexander Josef Herlert (Facility for Antiproton and Ion Research (DE))
- 15:20 - 15:40 NUSTAR Activities in Turkey 20'
Speaker: Sefa Erturk (Physics Department)
- 15:40 - 17:00 Discussion

Thursday, 15 May 2014

- 10:00 - 10:30 HISPEC/DESPEC 30'
Speaker: Juergen Gerl (GSI/FAIR - Facility for Antiproton and Ion Research)
- 10:30 - 10:50 Electrically Cooled HPGe Detectors for NUSTAR 20'
Speaker: Ivan Kojouharov (GSI)
- 10:50 - 11:20 A Hybrid Gamma Detector for HISPEC/DESPEC 30'
Speaker: Tugba Arici (GSI)
- 11:20 - 11:30 Coffee Break
- 11:30 - 11:55 Activities at Cukurova Universitesi 25'
Speaker: Isa Dumanoglu (Cukurova University (TR))
- 11:55 - 13:20 LUNCH
- 13:20 - 13:50 Superheavies 30'
Speaker: Dr. Michael Block (Gesellschaft für Schwerionenforschung mbH)
- 13:50 - 14:20 Phase Measurement for Radiation Detection. From Terahertz to the Hard Gamma Ray Regime-
New Assessment of Bolometer- and Cherenkov- Detectors 30'
Speaker: Albert H Walenta (Siegen)
- 14:20 - 14:50 ILIMA at FAIR Storage Rings 30'
Speaker: Yuri Litvinov (GSI, Darmstadt)
- 14:50 - 15:20 Direct Reactions with Exotic Beams at Low Momentum Transfer: The EXL and Active Target
Projects 30'
Speaker: Peter Egelhof (GSI Helmholtzzentrum für Schwerionenforschung GmbH)
- 15:20 - 15:50 Coffee Break
- 15:50 - 16:20 Reaction with Relativistic Radioactive Beam: The R3B Setup at GSI/FAIR 30'
Speaker: Heiko Scheit (TU Darmstadt)
- 16:20 - 16:50 Micro-Pattern Gasous Detectors 30'
Speaker: Ozkan Sahin (Uludag University)
- 16:50 - 17:05 Activities of Turkish-German University 15'
Speaker: Tuba Conka Nurdan (Turkish-German University)
- 19:00 - 23:00 Conference Dinner

Friday, 16 May 2014

- 10:00 - 10:15 Calorimetric Low Temperature Detectors for Heavy Ion Applications 15'
Speaker: Peter Egelhof (GIS Helmholtzzentrum für Schwerionenforschung GmbH)
- 10:15 - 10:45 Activities of Akdeniz University 30'
Speaker: Haris Djapo (Akdeniz University)
- 10:45 - 11:15 Turkey at EXOGAM2, NEDA and PARIS 30'
Speaker: Sefa Erturk (Physics Department)
- 11:15 - 11:25 Coffee Break
- 11:25 - 11:50 Detector Studies at Sabanci U 25'
Speaker: Emrah Kalemci (S)
- 11:50 - 12:10 Nuclear Astrophysics Studies at Kocaeli U 20'
Speaker: Taygun Guray (Kocaeli University)
- 12:10 - 12:20 Activities of İZSU-YTU- MSGSU Groups 10'
Speaker: Taylan Yetkin (Yildiz Technical University)
- 12:20 - 12:40 Supernovae Neutrinos, Nucleosynthesis, and Nuclear Structure 20'
Speaker: Yamac Pehlivan (MSGSU)
- 12:40 - 14:00 LUNCH
- 14:00 - 14:20 Nu Astrophysics with Core-Collapse Supernovae 20'
Speaker: Hasan Yuksel (MSGSU)
- 14:20 - 14:40 Quantum Monte Carlo Applications on Nuclear Structure 20'
Speaker: Cem Ozen (Kadir Has University)
- 14:40 - 15:30 Concluding Reports 50'
- 15:30 - 17:00 Historical Site Seeings in YTU

<https://indico.cern.ch/event/287931/>

Participated Turkish Universities

- Akdeniz University
- Aksaray University
- Çukurova University
- Ege University
- İstanbul University
- İstanbul Zaim University
- Kadir Has University
- Kocaeli University
- Mimar Sinan Fine Arts University
- Niğde University
- Sabancı University
- Turkish-German University
- Uludağ University
- Yıldız Technical University

Membership Intents

- Akdeniz University
- Aksaray University
- Çukurova University
- Ege University
- İstanbul University
- İstanbul Technical University
- İstanbul Zaim University
- Kadir Has University
- Kocaeli University
- Mimar Sinan Fine Arts University
- Niğde University
- Turkish-German University
- Uludağ University
- Yıldız Technical University

NUSTAR.tr

- After discussions among the participants, a consensus has been reached to form a NUSTAR.tr group in Turkey.
- The NUSTAR.tr collaboration is represented by an elected chairperson serving for a period of 2 years, with the possibility of renewal.
 - ▶ Each party has one vote and is represented by its signatory.
- For the initiation and starting up of the collaboration Prof. Dr. Nizamettin Erduran has been chosen as chairperson, and Prof. Dr. Sefa Erturk as deputy chairperson for the first 2 year term.

Webpage (under development):

<http://nustar-tr.net/>

Signing Ceremony



Signing Ceremony



Research Interests

(of several groups)

Research Interests on NUSTAR-1



Possible/Continuing Contributions

(Tuba ÇONKA NURDAN)

- Monte Carlo Simulations (Geant4, MAXWELL etc)
- Readout Electronics Simulations (SPICE etc)
- Readout Electronics Design&Layout
- Design and Development of the Detector System
- Tests of the readout electronics
- Detector Tests
- Data Analysis

Research Interests on NUSTAR-2



SİVAS
CUMHURİYET
ÜNİVERSİTESİ

Possible/Continuing Contributions

(Serkan AKKOYUN)

- Gamma Ray Tracking
- Neutron&Gamma Discrimination
- Improvement of pair-production tracking performance in high-energy region (>10 MeV)

Research Interests on NUSTAR-3



Possible/Continuing Contributions

(Isa DUMANOĞLU)

- Plastic and Quartz Clad Fiber Tests and Installations
- Photodetector Tests
- Data Analysis

Research Interests on NUSTAR-4

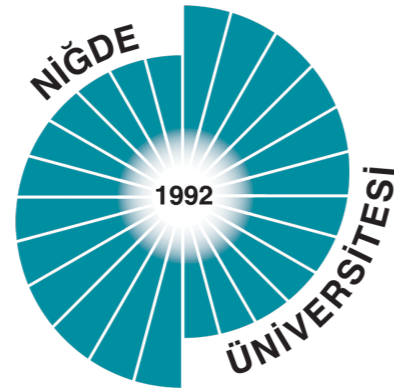


Possible/Continuing Contributions

(Sezgin AYDIN)

- Characterization of Neutron Detectors
- Lifetime measurement by DSAM and fast-timing technique.

Research Interests on NUSTAR-5



Possible/Continuing Contributions

(Sefa ERTURK, Nizamettin ERDURAN)

- EXOGAM2
- NEDA (NEutron Detector Array)
- PARIS (Photon Array Radioactive Ion Spectroscopy)

Detector Facilities with Analog & Digital RO:

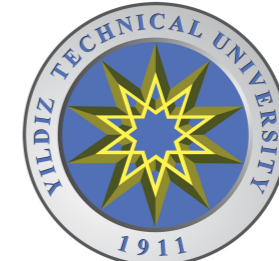
- Detector test facilities using Analog and Digital Electronic
- NIM Electronics
- TNT2 Electronics
- NUMEXO2 Electronics

Research Interests on NUSTAR-6

 **Istanbul Zaim Üniversitesi**
Sabahattin

 **TÜRK-ALMAN ÜNİVERSİTESİ**
TÜRKISCH-DEUTSCHE UNIVERSITÄT

 **TC MİMAR SİNAN
GÜZEL SANATLAR
ÜNİVERSİTESİ**



Possible/Continuing Contributions

(Nizamettin ERDURAN, Tuba ÇONKA NURDAN, Ferhat ÖZOK, Mehtap YALÇINKAYA, Taylan YETKİN)

- Monte Carlo Simulations (Geant4, COMSOL)
- Design and Development of the Detector System
- Tests of the readout electronics
- Characterization SiPMs
- Scintillator Readout with SiPMs
- Tests of the readout electronics
- Detector Tests
- Data Analysis

Contributing to DEGAS Active Shielding, MC Simulations and NEDA

(Submitted one SiPM Generic R&D Proposal (TUBITAK))

Current Status

- NUSTAR.tr has been established, finalizing signature collection.
 - ▶ Will submit these to NUSTAR collaboration with membership DB update request.
 - ▶ Documentation, local meetings etc. will be organized in near future.
- In September two proposals submitted to TUBITAK related to NUSTAR activities:
 - ▶ Generic SiPM & Scintillator R&D
 - ▶ EXOGAM2

Before end of 2014

- Two more proposals to be submitted for funding:
 - ▶ DEGAS Active Background shielding jointly with TUBITAK and DFG
 - ▶ NEDA Project Funding with TAEK: MC, Detector Design and Tests, Detector RO Tests
- Two/three laboratories at universities in Istanbul will be established/equipped with project related infrastructure.

Conclusions & Outlook

- Had a very successful workshop in May on NUSTAR.
 - ▶ Met the goals and generated genuine interest in the Turkish community to contribute to NUSTAR experiments.
 - ▶ Established NUSTAR.tr and are working on bringing members for an active organization.
- Establishing/equipping laboratories to do NUSTAR related works.
- As usual, obtaining funds is not easy. We are writing proposals, but need to start lobbying at the funding agencies for obtaining/securing longer commitments.