NUCLEAR PHYSICS IN SLOVAKIA

BRATISLAVA

COMENIUS UNIVERSITY
HEAVY IONS: detectors, spectrometry (Dubna, GSI)
ATLAS, DELPHI, NA-50, ... (CERN)
QCD, quark-gluon pasma, structure of nucleons & nuclei (theory)
COSMOGENIC RADIONUCLIDES & low activities
NEUTRINO (double $\beta$ decay) (theory)

SLOVAK TECHNICAL UNIVERSITY
MÖSSBAUER
POSITRON ANNIHILATION SPECTROSCOPY
ION BEAM TRANSPORT, ion implantation
RADIATION ECOLOGY

INSTITUTE OF PHYSICS, SLOVAK ACADEMY OF SCIENCES
QUANTUM HADRODYNAMICS & EXOTIC NUCLEI
STATISTICAL (PREEQ.) REACTIONS
QCD, formfactors, quark-gluon plasma
POSITRON ANNIHILATION & solid-state physics
(HADES EXPERIMENT) (GSI)

CYCLOTRON CENTRE of SLOVAK REPUBLIC
DIAGNOSTIC & THERAPEUTIC ISOTOPES, PET
PRESENT STATE: PET, 18 MeV cyclotron (installed)
NEAR FUTURE: 72 MeV cyclotron
KOŠICE

ŠAFÁRIK UNIVERSITY

INST. OF EXPER. PHYSICS, SLOVAK ACAD. SCI.

COSMIC RADIATION
RELATIVISTIC NUCLEAR PHYSICS (emulsions)
CERN: ATLAS, ALICE, WA97, NA57, LHC, ...
DESY: H1
FERMILAB: CDF, D0

PHASE TRANSITIONS in relativistic colls.

ZILINA UNIVERSITY

2 isolated high-energy theoreticians

APPLIED

NUCLEAR POWER PLANTS & RELATED Jaslovské Bohunice, Mochovee, Trnava
HEALTH PROTECTION Bratislava
INSTITUTE OF PHYSICS, BRATISLAVA:

- Asymmetric nuclear matter within relativistic mean-field
  - Parametrization of nucl. matter properties (DBHF)
    \[ \epsilon = \epsilon(\rho) \quad \rho = 0 - 1 \text{ fm}^{-3} \]
  - Population of particles (n, p, e, \(\mu\), \(\Sigma\), \(\Lambda\) ...) as function of \(\rho\)
  - Nuclear matter & charge distributions in selected nuclei
  - Algorithms to compress, process & visualize multi-dimensional data
  - DUBNA: ternary fission, fusion-fission & SHE, dissipation in HIC
  - (MSU) HIC up to Fermi energy (EURISOL DS)

- Statistical (preeq.) models
  - Nucleon radiative capture & \(\gamma\) emission \(E^* \leq 40\text{ MeV}\)
  - Cluster formation and emission \(E^* \leq 100\text{ MeV}\)
  - Cross sections for therapeutic & diagnostic isotopes
  - ECR ions sources & ion beam (hexapole ...) design
  - (GSI Darmstadt - HADES time-of-flight wall etc.)

- Positron annihilation
  - Solid-state properties (free volume) in polymers studied by positron annihilation

- HIC, quark-gluon plasma etc.

- Nucleon- and light-particle formfactors (← QCD)

NEUTRON GENERATOR NOT IN OPERATION
(the last experiment 3–4 years ago)

SLOVAK TECHNICAL UNIVERSITY, BRATISLAVA:
V-d-G 900 keV