

Nuclear Cross Section Measurements at MAMI / MESA

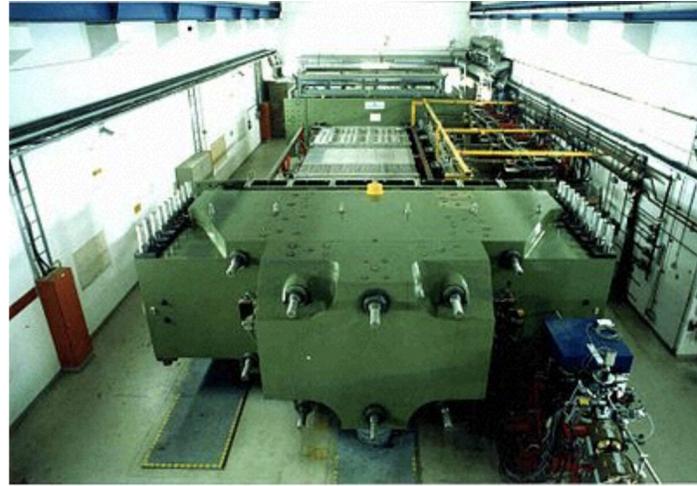


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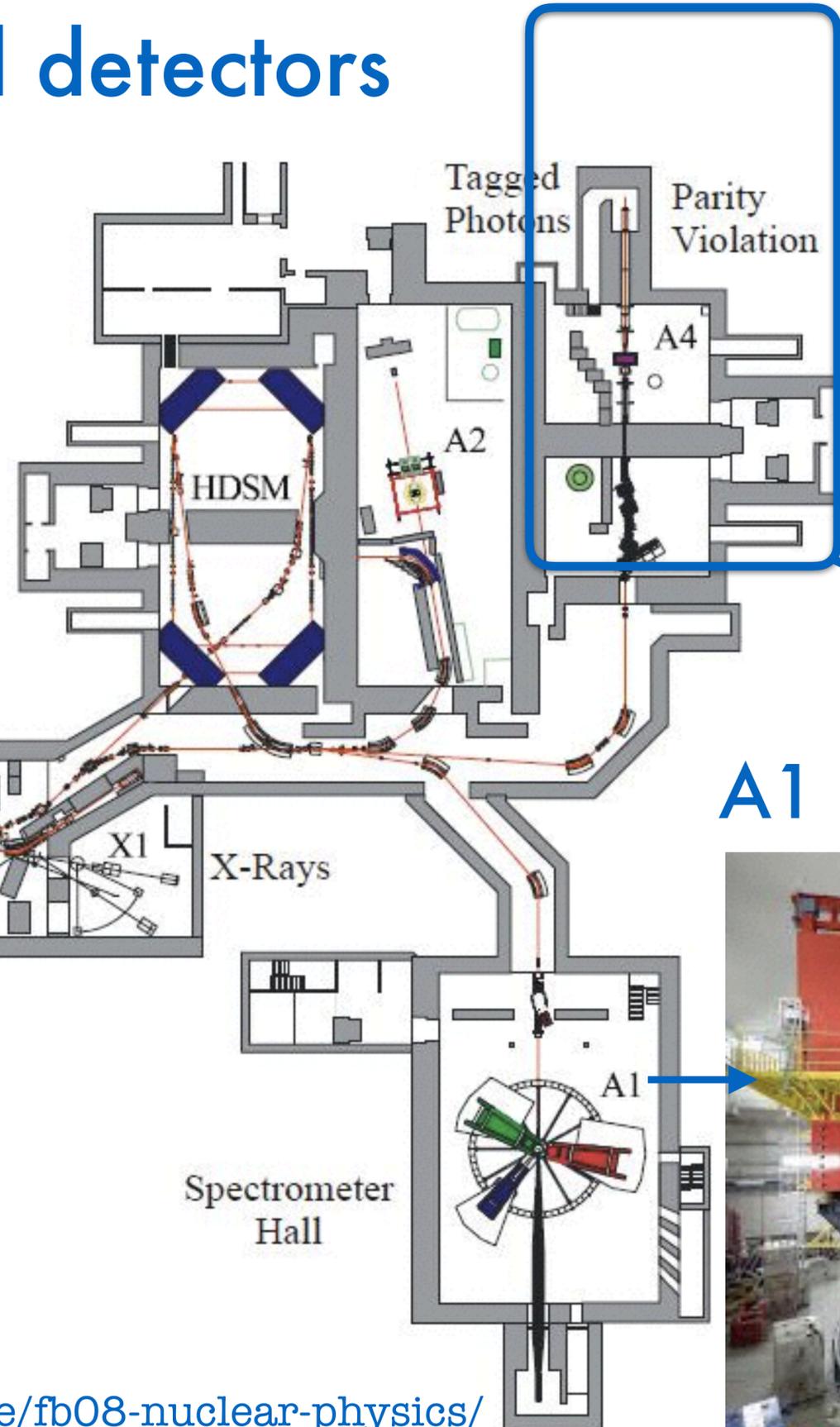
PRISMA+ Cluster of Excellence and Institute for Nuclear Physics
Johannes Gutenberg University Mainz

In collaboration with: Miha Mihovilovic (J. Stefan Institute, Slovenia)

Accelerator and detectors



10 m

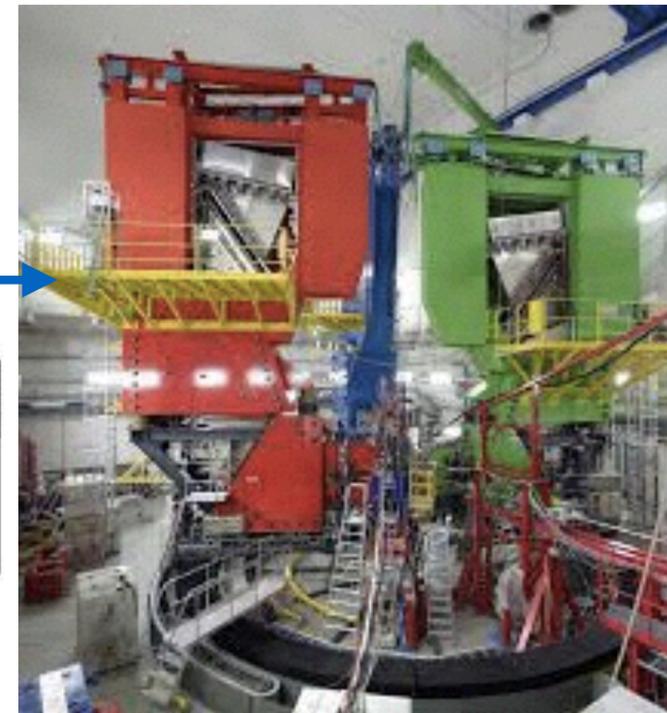


MAMI Cascaded Microtrons

- *Up to 1.6 GeV electron beam energy
- *CW beam
- *~80% polarization
- *100 μ A max. current
- *Availability: >80%
- *Future: MESA Accelerator (150 MeV)

<https://www.mesa.uni-mainz.de>

A1 Collaboration

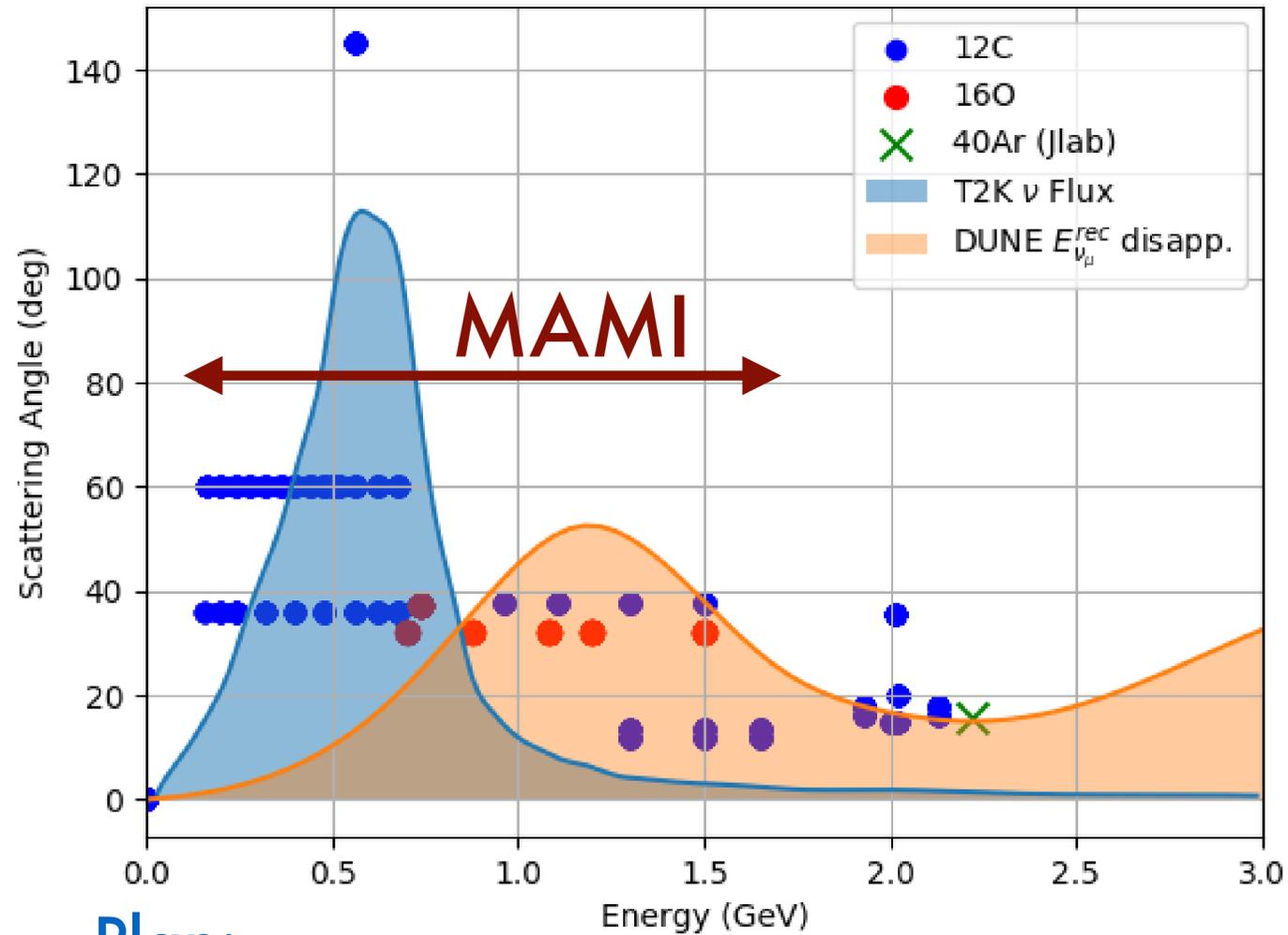


- *3 magnetic spectrometers
- * 10^{-4} mom. resolution
- *time coincidence
- *Targets:
 - *Solid-state
 - *cryogenic
 - *gas-jet

www.a1.kph.uni-mainz.de

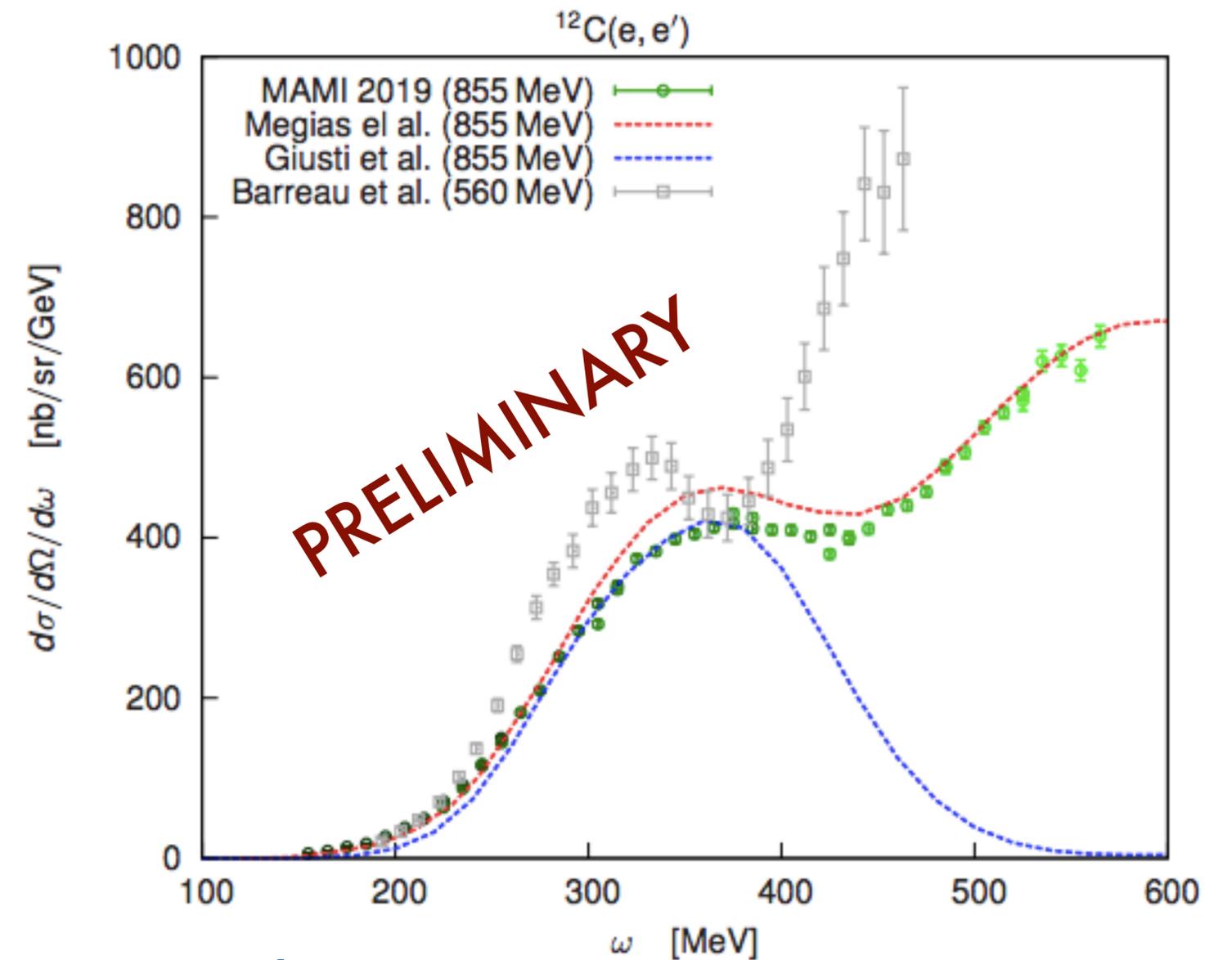
<https://www.blogs.uni-mainz.de/fb08-nuclear-physics/>

Preliminary Results and Plans



Plan:

- * Complete inclusive measurements on ^{12}C
- * Exploit the gas-jet target: argon and oxygen
- * Another possibility: Waterfall target (oxygen)
- * Goal: inclusive and exclusive (1p,2p) cross sections
- * Investigate possibilities for pion/neutron channels



Preliminary Measurements

- * Obtained in few hours of measurement
- * $E=855 \text{ MeV}$, $\theta_e = 70^\circ$
- * More data on type (analysis ongoing)
- * Scheduled measurement Dec. 2020
- * More measurements from 2022