

Exploring nuclei at the limit of REX-ISOLDE and HIE-ISOLDE using an active target detector

Riccardo Raabe (GANIL)

New Opportunities in the Physics Landscape at CERN

CERN, May 11–13, 2009

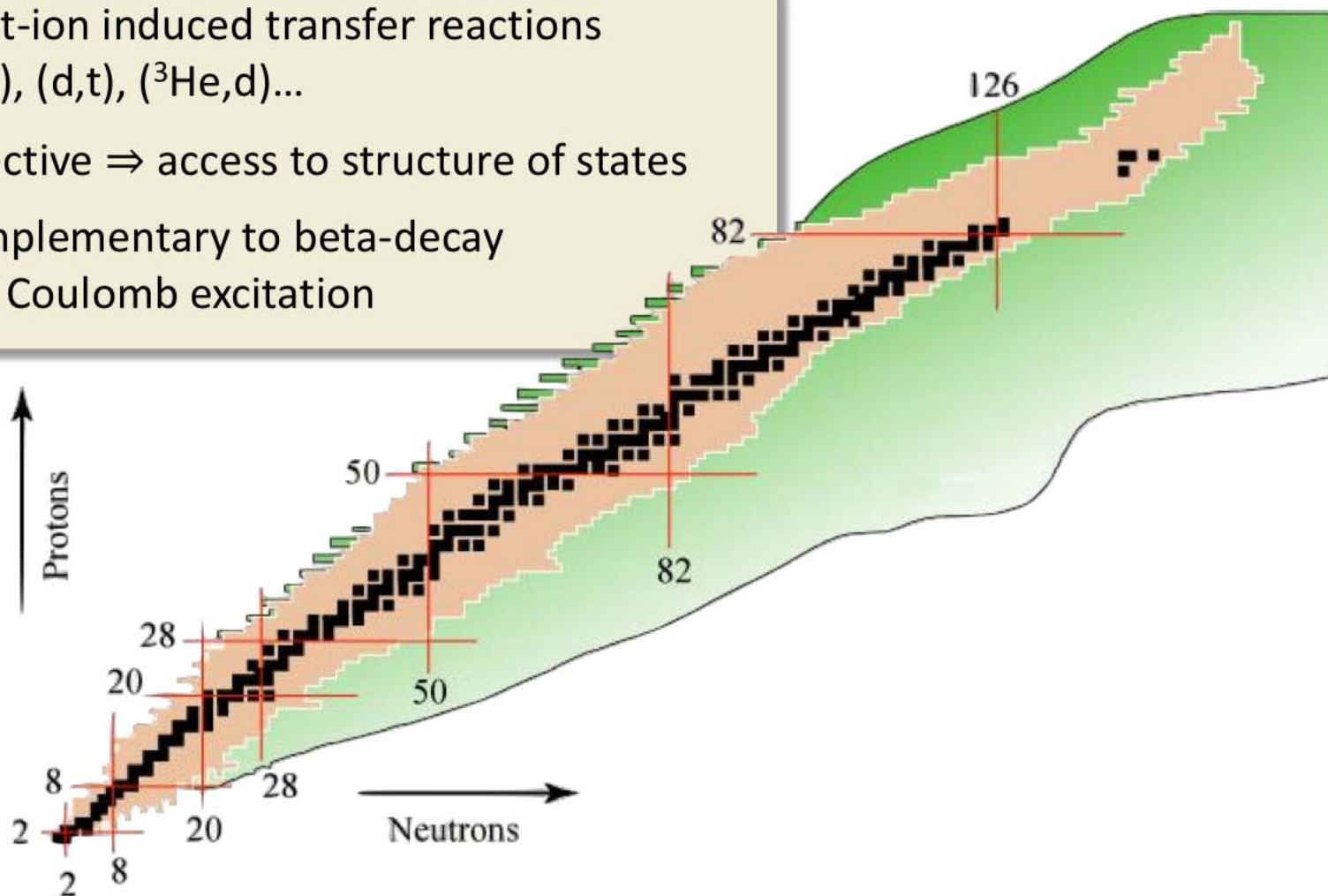


ISOLDE
CERN



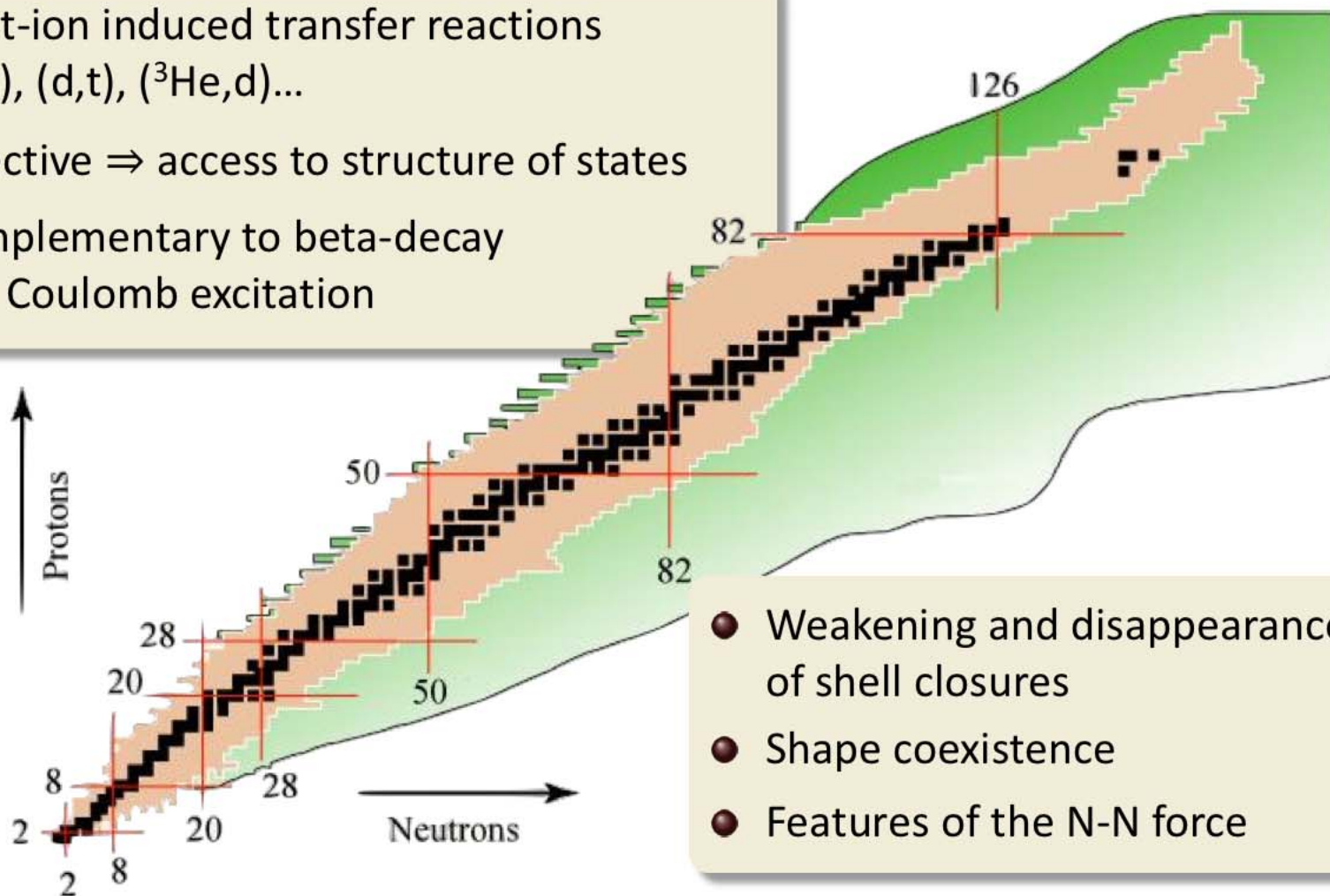
Use **direct reactions** as spectroscopic tool to study the **evolution of nuclear structure** far from stability

- Light-ion induced transfer reactions (d,p), (d,t), (^3He ,d)...
- Selective \Rightarrow access to structure of states
- Complementary to beta-decay and Coulomb excitation



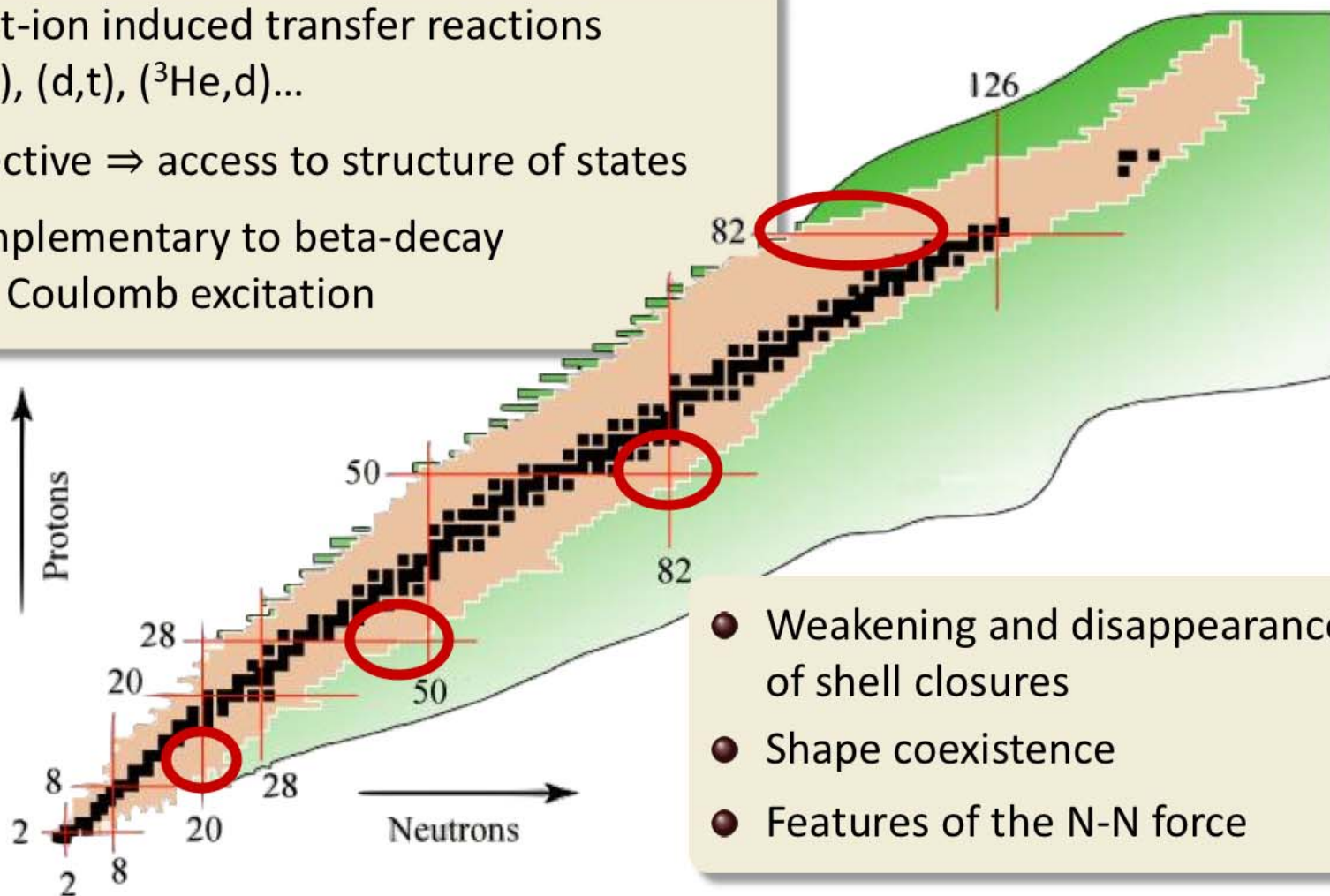
Use **direct reactions** as spectroscopic tool to study the **evolution of nuclear structure** far from stability

- Light-ion induced transfer reactions (d,p), (d,t), (^3He ,d)...
- Selective \Rightarrow access to structure of states
- Complementary to beta-decay and Coulomb excitation



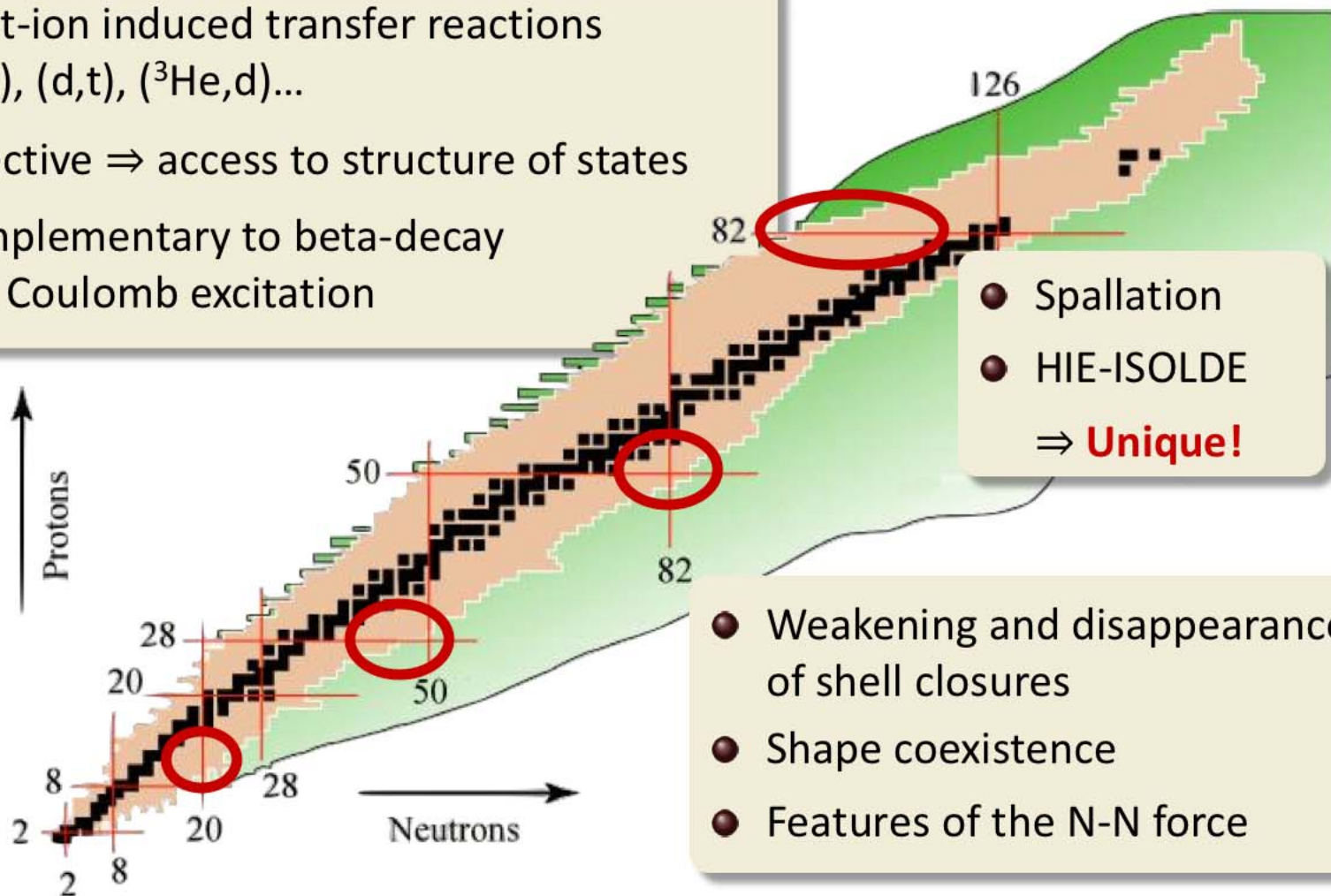
Use **direct reactions** as spectroscopic tool to study the **evolution of nuclear structure** far from stability

- Light-ion induced transfer reactions (d,p), (d,t), (^3He ,d)...
- Selective \Rightarrow access to structure of states
- Complementary to beta-decay and Coulomb excitation



Use **direct reactions** as spectroscopic tool to study the **evolution of nuclear structure** far from stability

- Light-ion induced transfer reactions (d,p), (d,t), (^3He ,d)...
- Selective \Rightarrow access to structure of states
- Complementary to beta-decay and Coulomb excitation



Inverse kinematics, weak beams

- Solid targets: limit on thickness (resolution, thresholds)

⇒ **active target**

Inverse kinematics, weak beams

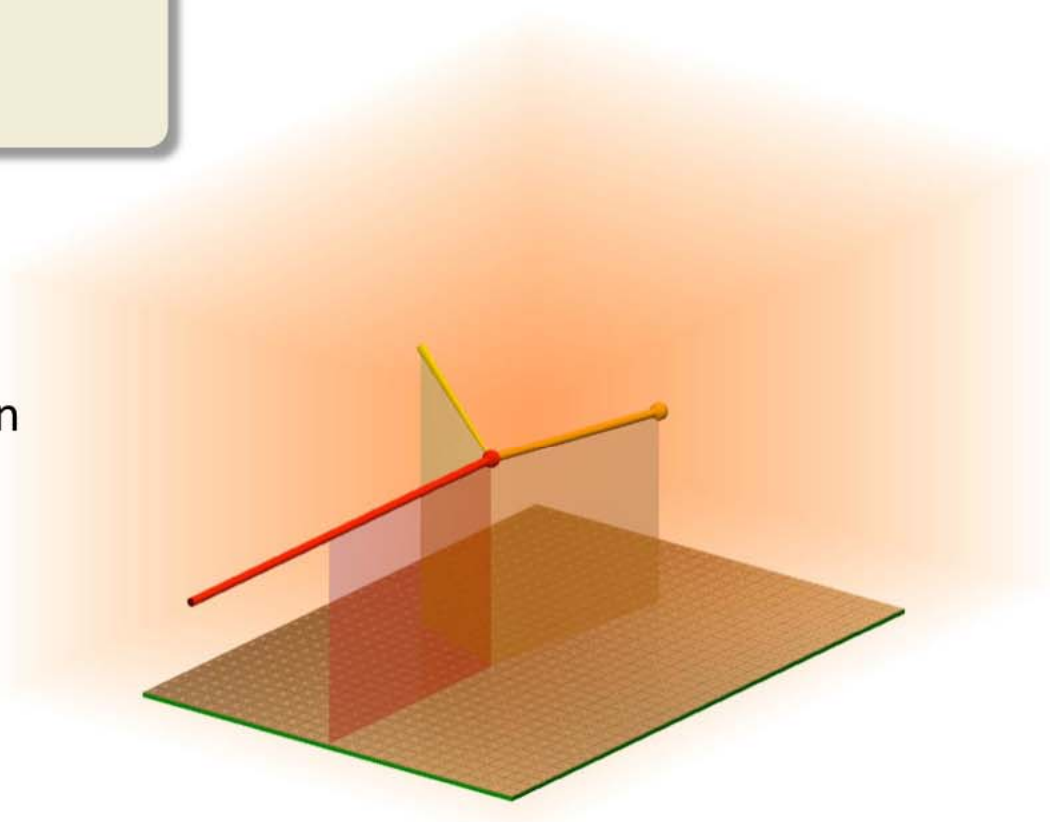
- Solid targets: limit on thickness (resolution, thresholds)

⇒ **active target**

Time-projection chamber

Nuclei of gas are the target

- Electron drift and amplification ⇒ tracking
- 10 to 100 times thicker than a solid target
- Spatial and energy resolution
- Low thresholds



Inverse kinematics, weak beams

- Solid targets: limit on thickness (resolution, thresholds)

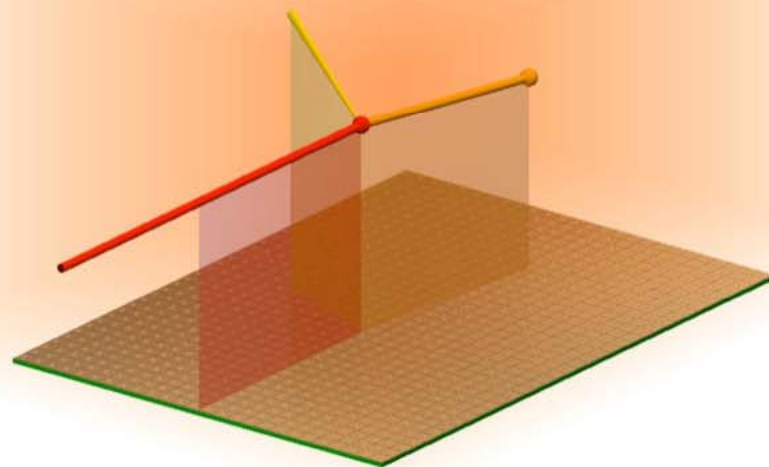
⇒ **active target**

Time-projection chamber

Nuclei of gas are the target

- Electron drift and amplification ⇒ tracking
- 10 to 100 times thicker than a solid target
- Spatial and energy resolution
- Low thresholds

- Present: Maya (GANIL)
- Future: ACTAR



Inverse kinematics, weak beams

- Solid targets: limit on thickness (resolution, thresholds)

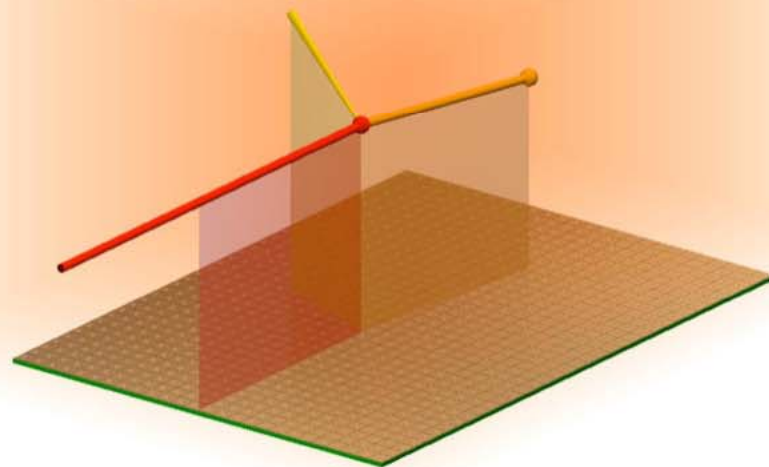
⇒ **active target**

Time-projection chamber

Nuclei of gas are the target

- Electron drift and amplification ⇒ tracking
- 10 to 100 times thicker than a solid target
- Spatial and energy resolution
- Low thresholds

- Present: Maya (GANIL)
- Future: ACTAR



Transfer reactions possible with the most exotic beams