## WHAT CAN YOU SEE?

You will see different kinds of tracks, which differ in length, thickness and shape and are produced by different types of particles.

<b>Pictures</b> © Karlsruher Institut für Technologie (KIT)	Particle	Explanation
₩ 10 % <b>20 % % 40 % % 40 %</b> 20 % %	muon or anti-muon	<ul> <li>Thin straight tracks</li> <li>fast particles with high kinetic energy</li> <li>they ionise molecules without scattering</li> <li>high energy muons, electrons or their corresponding anti-particles</li> <li>source: secondary cosmic particles</li> </ul>
	electron or positron	
1. M. Carlon Control	α particle system	<ul> <li>Thick straight tracks (approx. 5 cm):</li> <li>alpha particle systems (2p2n)</li> <li>massive particle systems with high "ionisation density" (for alpha: 1 MeV/cm)</li> <li>source: Radon-222, natural radiation</li> </ul>
	electron e <sup>-</sup> e <sup>-</sup> e <sup>-</sup>	<ul> <li>Curly / curved tracks:</li> <li>slow electrons scatter with other electrons via electromagnetic interaction - the lower the momentum of a particle, the easier it scatters</li> <li>Photoelectrons are low energy electrons set free by high energy photons (via Photoelectric effect)</li> <li>Source: beta emitters, photoelectric effect</li> </ul>
303	photoelectron	
	muon transformation $\mu \longrightarrow \psi_{\mu} e^{\psi_{\mu}} e^{\psi$	Kinks: This could be a muon transforming into an electron and two neutrinos!
Y	electron-muon- scattering e e $\mu$	Y-shape: This could be a muon knocking off an electron (bound to an atom) via electromagnetic scattering.