



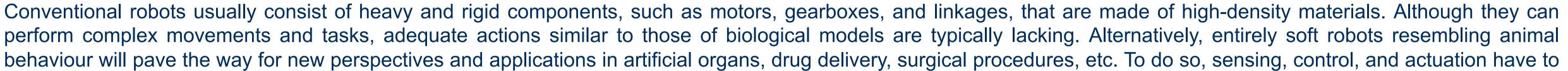
AUCKLAND BIOENGINEERING **INSTITUTE**



Technische Universität Dresden | Fakultät für Elektrotechnik und Informationstechnik, IHM

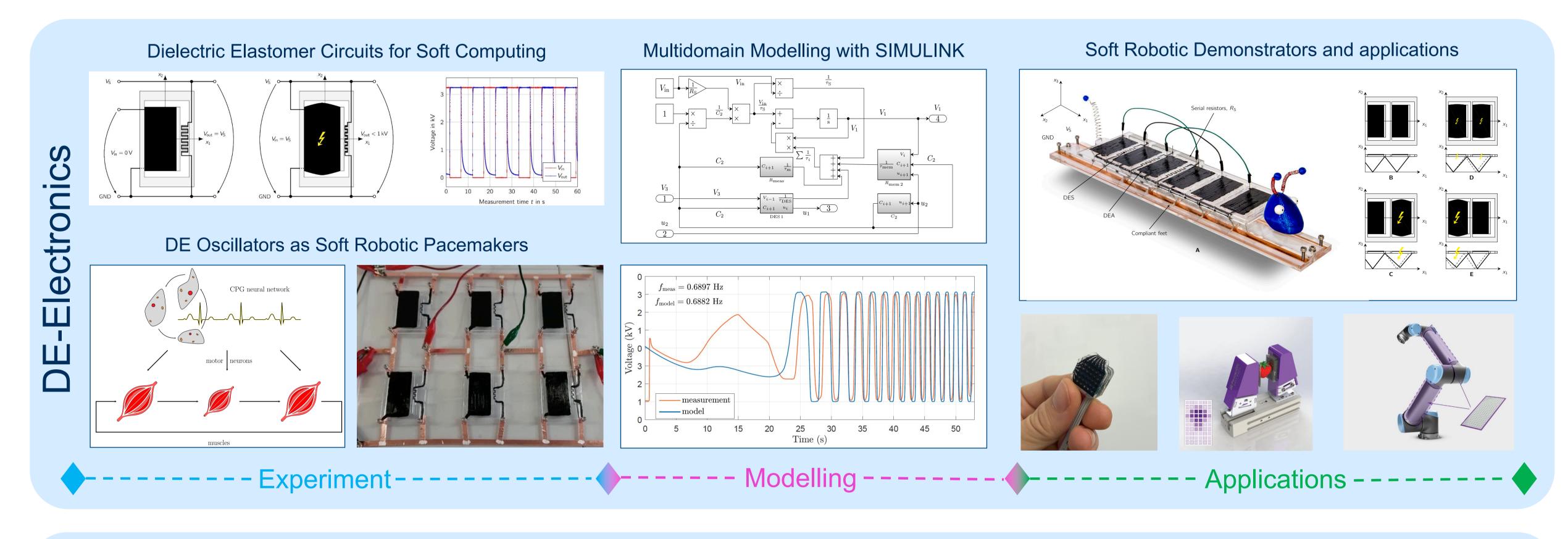
Multifunctional Dielectric Elastomer Electronics for Next Generation Soft Robotics – MEITNER

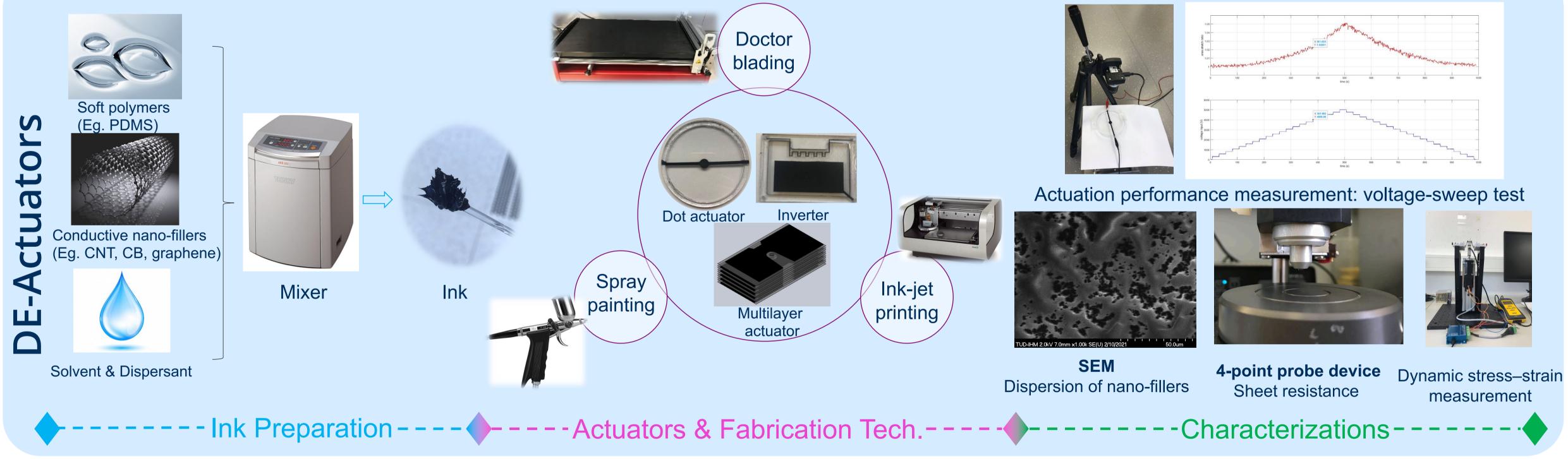
Emmy Nöther Junior Research Group, Dr. E.-F. Markus Henke Summary

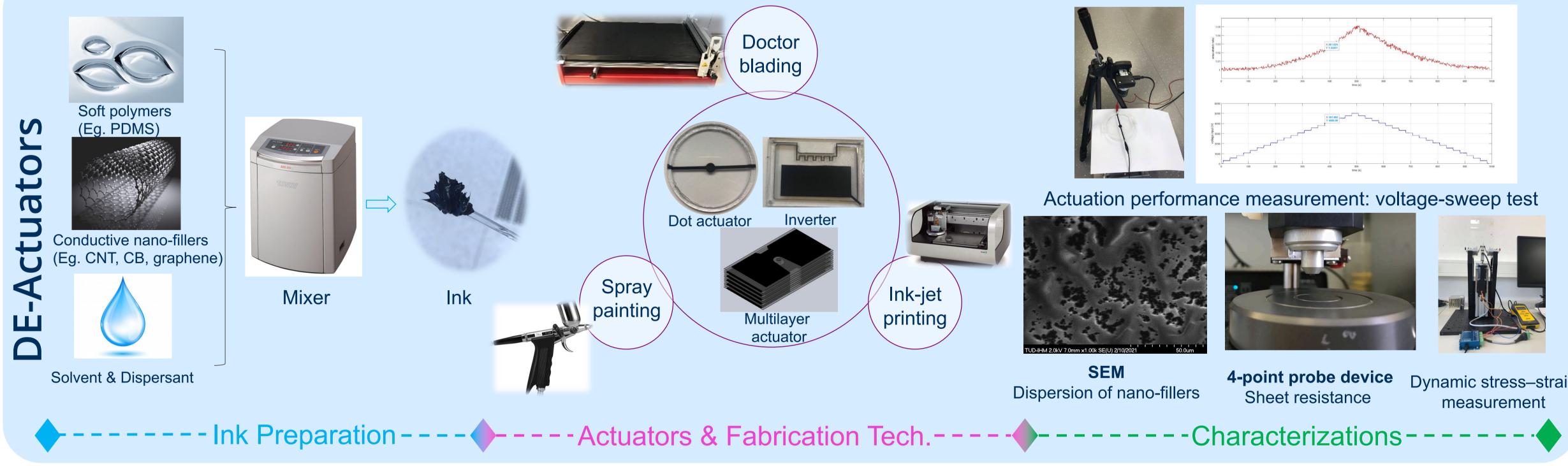


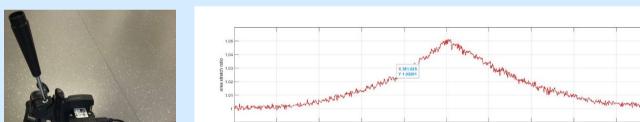


be integrated in the same soft structure. Partially soft actuators (e.g. pneumatic or hydraulic) are available nowadays, however, traditionally stiff semiconductor electronics for sensing and signal-processing are still required, preventing them from designing an entirely soft structure for broader applications. Therefore, it is necessary to develop novel materials with the capability of achieving full functions of the units embedded in the robotic system, including support structures, actuators, sensors, signal-processors, and power storage. A picture of a Caterpillar Robot is given below and it is a completely soft robot that possesses distributed, soft, and functional nodes throughout its entire body.









actuators pneumatic controller manufacturing independently regulates pressure on five channels Robotics • build-in pressure matic and vacuum source bneu Soft • tentacle – manipulator and gripper • embeds three air channels for actuation

 achieves desiring deflection angles by pressure control



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