Advancing Semiconductor Detectors Developed in the Frame of DANUBE Strategy Project

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Abstract. The DANUBE strategy project on Advancing wide-bandgap semiconductor detectors for harsh environment is a project supporting international cooperation among institutes from Slovakia (INFE STU), Czech Republic (IEAP) and France (CEA) with the aim of improving the safe use of nuclear technologies by developing perspective detectors. The project lasts 2 years from July 2025 and follows on from the previous two-year DANUBE project on SiC Timepix detector. Within the project, the SiC and diamond semiconductor detectors of the single pad type as well as the Timepix type were developed with a focus on the registration of fast neutrons. The detectors were tested within the framework of international cooperation at all three institutes, using 14 MeV neutrons at the DANAIDES facility at CEA Cadarache, using 0.3 to 18 MeV neutrons at the Van de Graaff accelerator at IEAP CTU in Prague and the first tests were also carried out at the DD generator of STU in Bratislava. The project has the ambition to strengthen the existing collaboration among STU, IEAP and CEA aimed at establishing wider international collaboration for EU project application.

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