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Preface

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These proceedings bring together the presentations collected during the Fifth Meeting of the Union for Compact Accelerator-driven Neutron Sources (UCANS-V), convened in Padova, Italy, May 12-15, 2015, a meeting jointly hosted by the INFN Laboratori Nazionali di Legnaro and the University of Padova. Compared to previous years over which two consecutive meetings shared one proceedings [1, 2], UCANS-V shows a substantial growth of the Union's interests in neutronic performance and applications. The reasons for the expansion are many. 1) Recent advances in accelerator and neutronics technologies have made it possible to construct compact accelerator-driven neutron sources (CANS) that achieve higher performance at lower costs with respect to machines of previous generation. 2) R&D of a broad spectrum of neutron applications including materials characterization and interrogation, fast-neutron irradiation, neutron capture therapy, nuclear data and nuclear astrophysics, and isotope production requiring experimentation using small-to-medium energy neutron sources. 3) Development of advanced instrumentation, such as high-efficiency fast-neutron detectors and novel neutron optics, which is best supported by inter-facility collaboration over a network of CANS.

For the sake of attesting to the above assertions, the contents of these proceedings are divided into five areas: Nuclear astrophysics and nuclear data, Neutron facilities, Moderators and beam optics, High power targets, and Detectors. However, readers will find ample overlaps and cross-referencing among the articles, as warranted by the cross-disciplinary nature and networking participation of the research.

REFERENCES

- [1] UCANS I & II, *Phys. Procedia*, **26** (2012) 1.
- [2] UCANS III & IV, *Phys. Procedia*, **60** (2014) 1.