



Contribution ID: 4

Type: **Talk**

Neutron Scintillation Screens for Imaging with Fast Neutrons from RC Tritec AG. (Actual situation and forecast of planned developments)

Wednesday, 23 October 2019 13:45 (30 minutes)

By the use of fast neutrons dense or large materials can be analysed by Radiography and computed tomography. Motivated by James F. Hunter from Los Alamos National Laboratory, we (RC Tritec AG) evaluated in 2016 in cooperation with the Fraunhofer Institute (Germany) a production process for manufacturing large sized (450 x 450 mm) ZnS filled PP-plates for conversion of fast neutrons into visible light. Detection could be done either by a large flat panel or by standard CCD-camera systems. For adjustment of the emission color to the corresponding detector ZnS:Cu (green emission) or ZnS:Ag (blue emission) filled PP-plates are provided. An overview about the typical features, like light output, resolution or gamma sensitivity is published by Malgorzata G. Makowska in 2017. [1] A comparative measurement regarding resolution and noise performance has been done by Nicola M. Winch et al. from LANL. [2] A disadvantage of the plates provided by RC Tritec is the lower resolution reachable, but show in contrast to other products a significantly better noise performance. We (RC Tritec AG) are going to launch end 2019 or latest beginning of 2020 in cooperation with the Paul Scherrer Institute a development project to evaluate different possibilities to improve the resolution of the scintillation screens for Imaging with fast neutrons. We would like to present within this meeting our actual state of the art in production, adjustment possibilities and a rough plan how we would follow up to improve the performance of the scintillation screens.

[1] Malgorzata G. Makowska, Bernhard Walfort, Albert Zeller, Christian Grünzweig and Thomas Bücherl J. Imaging 2017, 3, 60.

[2] Nicola M. Winch, Amanda C. Madden, James F. Hunter and Ronald O. Nelson 2017 IEEE Nuclear Science Symposium and Medical Imaging Conference (NSS/MIC)

Primary authors: Dr WALFORT, Bernhard (RC Tritec AG); MANNES, David (Paul Scherrer Institut); STROBL, Markus (ESS AB)

Presenter: Dr WALFORT, Bernhard (RC Tritec AG)

Session Classification: Scintillators 2

Track Classification: Neutron detection