



## FIRST Newsletter May 2019, Issue 48

### DGK Meeting 2019 in Leipzig

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Exactly 20 years after the first German Crystallographic Society (DGK) Meeting in Leipzig in 1999, the 2019 DGK Meeting took place March 25<sup>th</sup> to 28<sup>th</sup> at the same local spot, but the old building had been replaced by a brand new one. The new building was the site for 20 microsymbiosia covering all aspects of modern crystallography, powder diffraction and single-crystal structure determination. Bruker and Incoatec both were present with an exhibition stand focusing on the new [PHOTON III](#) detector series and the [I \$\mu\$ S DIAMOND](#), respectively.

The new IDEAL (Invariom Derived Electron Analysis) implementation within the [APEX3](#) software suite was the focus of Holger Ott's talk in a micro-symposium on organic molecules and coordination compounds. After giving a short overview of the principles and algorithms used in IDEAL, an example of the use of IDEAL within APEX3 was discussed. The talk concluded with some impressive examples of more accurate structure models, as bond density and lone pair electron density are much better taken into account compared to the independent atom model (IAM) used until now.

Photon counting is more accurate in the space domain than in the time domain. This was the key message of Martin Adam's lecture in the instrumentation session of the meeting. The new

PHOTON III detectors all benefit from the space domain approach in mixed-mode detection. Mixed-mode detection used in PHOTON III and modern XFEL detectors avoids the shortcomings of other photon counting detectors, such as charge-sharing between multiple pixels and pixel saturation when it comes to high X-ray doses.

With great food and drink, and a scene reminiscent of the famous Faust myth written by Goethe, Auerbach's Cellar provided the perfect place for the social evening and scientific discussions and less scientific chats.

**PHOTON III – Mixed Mode Detection**

**PHOTON III – Best performance for your application needs**

The PHOTON III detector series benefits from mixed-mode detection, seamlessly combining photon counting and integration modes, to dramatically improve the data quality:

- No parallax smearing for superior data
- Photon counting with zero read noise and zero dark current for the ultimate in sensitivity
- Strong reflections accurately integrated with no count rate saturation
- Largest home-lab detector for efficient data acquisition
- Zero dead time, shutterless and continuous data collection for the fastest experiments

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