Moxtek's developments in compact X-ray sources
S. Cornaby, T. Parker, R. Steck, B. Harris, K. Kozaczek, C. Smith, E. Miller and S. Kamtekar
Moxtek, Inc.

Manufactures of XRF and XRD benchtop instrumentation face increasing demand for lowering detection limits, decreasing the sampling time, increasing accuracy and/or precision of measurements. The x-ray tube is a vital component of XRF and XRD instruments, which affects the aforementioned characteristics. There are several ways of addressing these needs; increasing the x-ray flux, conditioning the x-ray beam in terms of the size and energy spectrum, and increasing the high voltage which increases the activation energy. We will present the on several different prototype x-ray tubes developed at Moxtek which address performance needs of modern XRF/XRD spectrometers:

1. The high power conical (HPC) tube, which is a compact 75 kV tube with both a 150 Watt and 350 Watt package. This x-ray tube provides an unprecedented x-ray flux from a compact, air cooled device.
2. A microfocal x-ray tube, with a 100 microns or less focal spot size.
3. A portable and compact 120 kV & 5 Watt x-ray tube and high voltage power supply, an air cooled device in a hand size package.

In this presentation we will cover some of the basic functionality of each one of these sources, as well as some of the advantages for their intended x-ray applications.