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#### Combined XRD and XAFS study of the crystalline structure of V-C-Al-N

Multi-element hard coating materials such as V-Al-C-N are of great interest for many technological applications. Their mechanical properties depend on the composition, crystalline phase and microstructure of the coating. Here we will present the results of a combined X-ray diffraction (XRD) and X-ray absorption finestructure spectroscopy (XAFS) study of the composition-dependent crystalline phase of V-C-Al-N. The films were deposited by reactive RF magnetron sputtering from a segmented target composed of AlN and VC. Synchrotron radiation measurements were performed at the beamlines PDIFF and XAS at the Angstromquelle Karlsruhe (ANKA). The experimental results confirm the theoretically predicted metastable cubic mixed (V,Al)(C,N) phase.