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**Hans U Boden\*** (boden@mcmaster.ca), **Emily Dies**, **Anne Isabel Gaudreau**, **Adam Gerlings**, **Eric Harper** and **Andrew J Nicas**. *Alexander invariants of virtual knots*.

Given a virtual knot  $K$ , we construct a group  $VG_K$  called the virtual knot group, and we use the elementary ideals of  $VG_K$  to define invariants of  $K$  called the virtual Alexander invariants. For instance, associated to the  $k = 0$  ideal is a polynomial  $H_K(s, t, q)$  in three variables called the virtual Alexander polynomial, and it is closely related to the generalized Alexander polynomial for virtual knots of Sawollek, Kauffman-Radford, and Silver-Williams. The virtual Alexander polynomial admits a natural normalization and satisfies a skein formula. Given a representation  $\varrho: VG_K \rightarrow GL_n(R)$ , one can use a similar approach to define twisted Alexander invariants, and the twisted virtual Alexander polynomial also admits a natural normalization.

This talk will begin with a brief introduction to virtual knot theory and will present the construction of  $VG_K$  and its Alexander invariants. We will also show how to use the invariants to give information about the virtual crossing number of  $K$ , and time permitting we may discuss current work in progress on virtual knots  $K$  admitting Alexander numberings. (Received August 27, 2014)