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**Jochen Brüning, Franz W Kamber** and **Ken Richardson\*** ([k.richardson@tcu.edu](mailto:k.richardson@tcu.edu)), TCU  
Box 298900, Fort Worth, TX 76129. *Multiplicities of the equivariant index.*

We describe a formula for the multiplicities of the index of an equivariant transversally elliptic operator on a  $G$ -manifold. The formula is a sum of integrals over blowups of the strata of the group action and also involves eta invariants of associated elliptic operators. Among the applications, we obtain an index formula for basic Dirac operators on Riemannian foliations, a problem that was open for many years. We demonstrate this theorem on several examples. (Received February 07, 2013)