1056-37-1508 **David E. Molnar***, 30 Ridge Rd #15, Ridgewood, NJ 07450. *Diophantine Approximation for Alternate Forms of Continued Fractions.*

The strength of a rational approximation p/q to an irrational x can be measured by the *approximation coefficient*, $\theta(x, \frac{p}{q}) = q^2|x - \frac{p}{q}|$. When p/q is a convergent of the classical continued fraction expansion of x, $\theta(x, \frac{p}{q})$ is less than 1. A partial converse due to Legendre states that if $\theta(x, \frac{p}{q}) < 1/2$, then p/q is a convergent to x. Another classical result due to Vahlen states that of any two consecutive convergents to an irrational x, at least one must have approximation coefficient less than 1/2. We look at results like these for a family of continued fraction expansions generalizing the classical theory. (Received September 22, 2009)