1048-08-300   **Tim Ridenour*** (`tbr4@math.ucr.edu`). *Ideals in parabolic subalgebras of simple Lie algebras.*

An ideal in the positive root system R^+ for a simple Lie algebra over $\mathbb{C}$ is a subset $\Psi \subset R^+$ with the property that if $\alpha \in \Psi$ and $\beta \in R^+$ are such that $\alpha + \beta \in R^+$, then $\alpha + \beta \in \Psi$. An abelian ideal in R^+ is an ideal Ψ with the added condition that if $\alpha, \beta \in \Psi$, then $\alpha + \beta \notin R^+$. A well known result due to D. Peterson is that the number of abelian ideals in the positive roots of a simple Lie algebra of rank n is 2^n. In this talk, I will discuss joint results with Dr. Vyjayanthi Chari and RJ Dolbin from the paper *"Ideals in parabolic subalgebras of simple Lie algebras"* which give an efficient proof for Peterson's theorem while also enumerating all abelian ideals in R^+ for any simple $\mathfrak{g}$. Furthermore, I will demonstrate that these ideas can be extended to ideals in parabolic subalgebras for simple Lie algebras. (Received February 10, 2009)