



**Electrical Engineering Colloquium**  
**Dallas Chapter of IEEE Signal Processing Society Presents**

**Recent Results on the Synthesis and  
Design of PID Controllers**

**Prof. Shankar Bhattacharyya**  
**Department of Electrical Engineering**  
**Texas A&M University**

**Monday, Oct. 24, 2005**  
**ECSS 2.102 (TI Auditorium), 11:00am**

In this talk we report recent breakthroughs on the theory and design of Proportional-Integral-Derivative (PID) controllers. The starting point is an efficient procedure to compute the entire set of PID controllers stabilizing a given plant. With this set in hand, we show how to systematically calculate complete subsets that achieve several performance specifications. Thus one can carry out design under multiple performance specifications in a rational manner. The theory underlying these algorithms is based on extensions of the classical Hermite-Bieler theorem and will be explained. Illustrative examples will be included as well as proptotype software. Given the importance of the PID controller in aerospace, motion control, process control and in electrical, mechanical and chemical engineering applications, these results are likely to have a significant impact on the control industry.

---

Bio – S.P. Bhattacharyya is a Fellow of the IEEE and holds the Robert M. Kennedy Professorship in Electrical Engineering at Texas A & M University. He received his education at IIT Bombay (B. Tech, 1967) and Rice University (M.S. 1969, Ph.D. 1971). He has authored/coauthored five research monographs and over 200 papers in the field of control systems.

For more information on the Dallas Chapter and directions to UTD, please refer to <http://www.utdallas.edu/~kehtar/ieee-sp/ieee-sp-index.htm>