Attitude Stabilization of Satellites Using Random Dither Quantization

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Abstract : Recently, the effectiveness of random dither quantization method for linear feedback control systems has been shown in several papers. However, the random dither quantization method has not yet been applied to nonlinear feedback control systems. The objective of this paper is to verify the effectiveness of random dither quantization method for nonlinear feedback control systems. For this purpose, we consider the attitude stabilization problem of satellites using discrete-level actuators. Namely, this paper provides a control method based on the random dither quantization method for stabilizing the attitude of satellites using discrete-level actuators.

Keywords : quantized control, nonlinear systems, random dither quantization

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