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THE DESIGN OF EFFICIENT ERROR CONTROL CODES FOR SPACECRAFT TELECOMMAND

Abstract

Along with the space mission complexity increased and the demand for the precision of orbit injection upgraded, the upper stage and satellite need not only simple telecommand, but also up loading navigation parameters and software. The traditional telecommand error control codes cannot meet these new demands. In light of that, we constructed a new protograph-based rate-compatible family of LDPC codes. These codes have minimum distance growing linearly with block size which is advantage for low error floor performance. Simulation results show that the protograph LDPC codes which were constructed by the algorithm proposed in this paper, have good performance even at short code length.