Resource Scheduling for TH-Precoding Adoption on Multi-beam Satellite Downlink Signals

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***Abstract*—A resource scheduling scheme which is based on interference pre-cancellation is proposed in this paper for orthogonal frequency division multiple access (OFDMA) multi-beam satellite system. Firstly, in order to reuse same channel among beams, Tomlinson-Harashima precoding (TH-Precoding) is introduced to pre-cancel downlink interference of users from different beams. Then, several resource scheduling algorithms are proposed to jointly work with TH-Precoding. Finally, simulations are executed to validate the proposed scheme, which suggest that compared to traditional single frequency reuse scheme, the proposed scheme can successfully eliminate co-channel interference and improve user SINR significantly.**

***Keyword*—Tomlinson-Harashima precoding, interference pre-cancellation, resource scheduling, OFDMA, multi-beam satellite communication**

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