

Elektrotechnik-Elektronik-Informationstechnik

EEI KOLLOQUIUM

MIMO Turbo Equalization for Severe Triply-Selective Fading Channels

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Donnerstag, der 31.07.2014, 17⁰⁰ Uhr

Cauerstr. 7, Seminarraum E 1.12

Diskussionsleitung: Prof. Dr.-Ing. R. Schober

Severe triply-selective fading channels are found in many applications where multipath delay spread, Doppler-to-Carrier ratio, and MIMO spatial correlation are very high. Examples of such channel include digital TV broadcasting channel, shallow water acoustic channel, and amplify-and-forward relay channel. This talk will first give an overview of the technical challenges associated with such channels, then present MIMO turbo equalization techniques as a solution to enhancing performance of physical-layer receivers. An example of underwater acoustic communication is illustrated with results from several ocean experiments to compare the effectiveness of single-carrier frequency-domain Turbo linear equalization and time-domain linear or decision feedback Turbo equalization.