LECTURE (2KV)

JOHANNES KEPLER UNIVERSITÄT LINZ

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ISP INSTITUTE OF SIGNAL PROCESSING

Titel: **Ausgewählte Kapitel der Signal- und Informationsverarbeitung – Kanalcodierung (382.062 im WS 23/24)**

Vortragender: **Univ.-Prof. Dr.-Ing. Johannes Huber**
Friedrich-Alexander University
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Datum/Uhrzeit: 6.Oktober & 7.Oktober 2023 + 13. Oktober & 14. Oktober (Block)

Ort: Wird noch im KUSSS bekanntgegeben

Inhalt:

Die Vorlesung behandelt die Grundlagen und Anwendung von Kanalcodierung für digitale Nachrichtenübertragung und gibt des Weiteren Einblicke in aktuelle Forschungsthemen des Wissenschaftsgebietes.

Behandelt wird unter anderem:

- Fundamentals of Block Coding
- Finite Fields I: Prime Fields
- Linear Block Codes
- Linear Cyclic Codes
- Finite Fields II: Extension Fields
- BCH und RS Codes
- Convolutional Codes, Viterbi-Algorithm, BCJR-Algorithm
- Codes with Iterative Decoding, Turbo Codes
- Principles und Limits for Information Combining
- LDPC-Codes, Protographs, Spatial Coupled and convolutional LDPC-Codes
- Polar Codes
- Coded Modulation

Über den Vortragenden:

Johannes Huber received the Dipl.-Ing. degree in electrical engineering from the Technical University of Munich, Germany, in 1977. From 1977 to 1982 he was a research assistant at the Federal Armed Forces University Munich from which he received the Dr.-Ing. degree with a thesis on coding for channels with memory. From 1982 to 1990, he was an Akademischer Oberrat at the same university and received the Dr.-Ing. habil. degree with a thesis on trellis coded modulation. In spring 1991, he joined the IBM Research Laboratory, Zurich, Switzerland. From autumn 1991 until receiving the emeritus status in spring 2017, he was Professor at the Friedrich-Alexander-University Erlangen-Nürnberg, Germany.

His research interests are information and coding theory, modulation schemes, algorithms for signal detection and adaptive equalization for channels with severe intersymbol interference, signaling, detection and equalization of multiple-input multiple-output (MIMO) channels, and concatenated coding together with iterative decoding. Johannes Huber is Fellow of the IEEE. In 2008 he was appointed a corresponding fellow of the Royal Society of Edinburgh. Since 2009, Johannes Huber is an ordinary member of the Bavarian Academy of Sciences and Humanities. He served as an Editor-in-Chief and as an Associate Editor for several international journals on information theory and communications.

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