

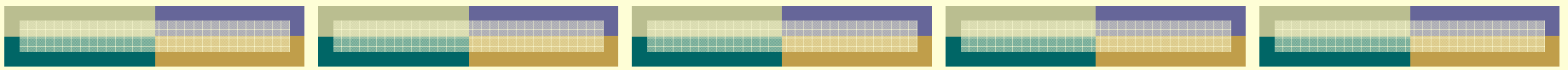


Journal Watch

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New Inner and Outer Bounds for the Memoryless Cognitive Interference Channel and Some New Capacity Results


Stefano Rini, Daniela Tuninetti, and Natasha Devroye

- System Model: Two user cognitive radio
 - Question: What is the capacity region?
 - Contribution: New outer and inner bounds
 - Till now: Outer bound involves Aux. Rv.
 - Proposed outer bound: No aux. rv. Involved
 - Benefits: computable
 - Inner bound: rate splitting, SP coding, binning and GP coding (best known to date!)
 - Bounds are tight for many corner cases
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On Scaling Laws of Diversity Schemes in Decentralized Estimation


Alex S. Leong and Subhrakanti Dey

- Set up: Decentralized estimation of a gaussian source using M sensors
 - Protocol: Transmits if the channel is good using analog amplify and forward technique
 - Fusion centre: MMSE estimate of the parameter
 - Asymptotic MSE $\sim 1/\ln M$
 - Comparison: Coherent multi-access and Orthogonal schemes (derivation for the asymptotic MSE is derived and is shown to $\sim 1/M$)
 - Tradeoff: Simplicity vs complexity (Multi-access and orthogonal schemes)
 - Final Conclusion: Insensitive to optimal power and transmission probability for a Rayleigh fading channel
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Multuser MISO Interference Channels With Single-User Detection: Optimality of BF and the Achievable Rate Region


Xiaohu Shang, Biao Chen and H. Vincent Poor

- Model: SIMO Interference channel with BF at the transmitter+ Gaussian signaling
 - Receiver: Single user detector
 - Problem: Rate region computation is non convex.
 - Main contribution: Non-convex to convex problem
 - Result: BF achieves all points on the boundary of the achievable rate region
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Sampling and Reconstructing Signals From a Union of Linear Subspaces

Thomas Blumensath

- Problem: See the title
 - Main Result: Projected Landweber algorithm is able to recover signals from a union of subspaces if it satisfies a bi-Lipschitz embedding condition.
 - Unify many results derived in areas such as
 - compressed sensing, affine rank minimization, analog compressed, sensing and structured matrix decompositions
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More Papers

- Nearly Sharp Sufficient Conditions on Exact Sparsity Pattern Recovery
 - On Maximum Eigenmode BF and Multi-User Gain
 - The Capacity Region of the Three Receiver Less Noisy Broadcast Channel 4058
 - Multicast Outage Probability and Transmission Capacity of Multi-hop Wireless Networks
 - Etc....
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