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On The Achievable Rate Region of a New Wiretap Channel With Side Information

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A new applicable wiretap channel with separated side information is considered here which consist of a sender, a legitimate receiver and a wiretapper. In the considered scenario, the links from the transmitter to the legitimate receiver and the eavesdropper experience different conditions or channel states. So, the legitimate receiver and the wiretapper listen to the transmitted signal through the channels with different channel states which may have some correlation to each other. It is assumed that the transmitter knows the state of the main channel non-causally and uses this knowledge to encode its message. The state of the wiretap channel is not known anywhere. An achievable equivocation rate region is derived for this model and is compared to the existing works. In some special cases, the results are extended to the Gaussian wiretap channel.

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