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**SESSION 15: Regenerator / Recuperator  
Investigations**

Paper 15.5

Thursday ORAL Session

11:45 AM

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***Experimental Validation of Two-Phase  
Recuperation Heat Transfer in  
Precooled MR J-T Systems***

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Efficient heat recuperation is one of the crucial aspects affecting the performance of mixed-refrigerant Joule-Thomson (MR JT) cryocoolers. This become even more important in the case of precooled systems which improves the performance, but on the other hand, emphasizes the challenges related to the effectiveness of the recuperation process. The experimental validation of two-phase recuperation heat transfer has been performed. The overview of available modelling methods has been performed and compared with experimental results from precooled MR JT cryocooler reaching 270W at 116K. The research contributes to better understanding of recuperation heat transfer in MR JT cryocoolers and other multicomponent systems.