

SYMPAB - (16150) - VISUALIZATION OF THOUGHT EXPERIMENTS IN SPECIAL RELATIVITY EDUCATION AT THE SECONDARY LEVEL

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Short Abstract

Special relativity theory (SRT) presents an attractive introduction to modern physics in secondary education. Understanding the principles of SRT, however, requires a conceptually demanding learning process, involving a variety of robust learning difficulties. Thought experiments (TEs), performed by students themselves, provide a fruitful learning tool to address these difficulties. We present two visualization tools that explicitly support students in performing specific phases of a TE: a computer modelling tool and a paper and pencil representation of space time. We discuss relevant design features and specify how these visualization tools can be used to address learning difficulties.