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LOUIS TEBOU* (teboul@fiu.edu), Department of Mathematics and Statistics, Florida International University, Miami, FL 33199. *On some stabilization problems for the Timoshenko beam.*

The stabilization of the Timoshenko beam system with localized damping is examined. The damping involves the sum of the bending and shear angle velocities. First, we show that strong stability holds if and only if the support of the damping meets one endpoint of the interval under consideration. Next, we use the frequency domain method combined with the multipliers technique to prove the exponential stability of the associated semigroup when the damping support meets one endpoint of the interval under consideration. When the speed of propagation of the wave generated by the bending and that of the wave generated by the shear angle are distinct, the proof is elementary. However, when the two speeds are equal, an important identity breaks down, and the proof is carried out by the introduction of an appropriate auxiliary equation whose solution plays a critical role in subsequent estimates. Additionally, the stabilization of the Timoshenko beam in the presence of one locally distributed damping acting through the bending equation is investigated. (Received July 28, 2015)