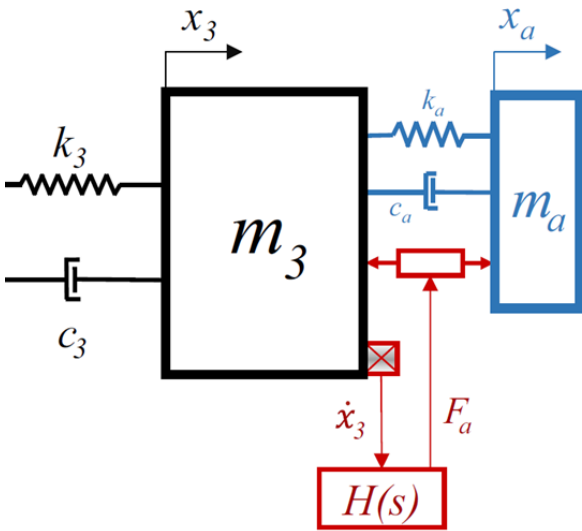


## Szakkolgozat / Diplomaterv téma

Témavezető:	Dr. Habib Giuseppe, tudományos munkatárs, <a href="mailto:habib@mm.bme.hu">habib@mm.bme.hu</a>	
Cím:	Hybrid active-passive vibration mitigation in machining	
Javasolt képzési szint:	BSc / MSc / TDK	
Nyelv:	Magyar, Angol	
<b>LEÍRÁS</b>		
<p><u>Bevezetés:</u> The tuned mass damper consists of a mass attached to a primary structure through a visco-elastic element. The interaction between the natural frequency of the primary structure and of the damper allows to reduce vibration level. The possibility of adding an actuator to the tune mass damper was investigated in previous works, showing that it can improve its performance. The objective of this thesis is to apply this system to turning machining operation for suppressing chatter vibrations. After reviewing the existing literature, the candidate should study the problem analytically and numerically.</p>		
		
<p>Scheme of a hybrid tuned mass damper from „Robust hybrid mass damper”. Collette, Chesné, JSV (2016)</p>		
<p><u>Tasks:</u></p> <ul style="list-style-type: none"><li>• Study the literature about methods for suppressing chatter in turning machining.</li><li>• Study the basic principles of the tuned mass damper.</li><li>• Define a mechanical and a mathematical model for the system. The system should include: 1 degree-of-freedom machining tool, regenerative cutting force, tuned mass damper, sensor and actuator to enhance tuned mass damper performance.</li><li>• Study analytically the stability of the system.</li><li>• Identify the control parameters which guarantee optimal performance of the system.</li><li>• Verify the obtained results through numerical simulations.</li></ul>		