<u>Master Thesis Project</u> in Cooperation with Industrial Partner

Modification of wood pulp fibers to reduce the electrical energy demand in papermaking

It is well known that the for papermaking the mechanical treatment of pulp is done with means of a refiner which is operated at high temperature and pressure. This technique allows the operators to keep the energy consumption low since lignin softens above 130°C. However many mills have observed a deteriorated fiber quality if the temperature was too high.

We would like to develop a process to modify lignin in unbleached chemical pulp fibers by the dosage of additives and try to keep the energy consumption low while maintaining the fiber properties at an acceptable level. As a consequence, such a technology would also allow Mondi to increase lignin content in wood pulp fibers and by that reduce the specific consumption of wood per ton of paper. Less wood for the same amount of paper result in less CO2 emitted by the transport of logs and chips to the mill.

Your task would be to perform refining experiments with pulp additives and evaluate the resulting paper properties obtained from the modified pulps. You will get to know basics in paper technology at Graz University of Technology where pre-tests of the technology need to be done in lab scale. In a next step the modified pulps will be tested in a pilot scale refiner at BOKU in Tulln.

Industrial partner:	Mondi AG, Marxergasse 4A, 1030 Vienna (www.mondigroup.com)
Type of thesis:	Master Thesis
Start date:	to be defined; ~Summer 2020
Place of work:	TU Graz, BOKU Tulln
Salary:	€1030.- per month, 6 month contract
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