



Environmentally friendly tribological solutions

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Green manufacturing requires energy efficiency: decreasing friction by adequate tribological solutions always saves energy. It also means reducing pollution and wastes, which can be achieved or improved by green lubricants, Minimum Quantity Lubrication (MQL), less health- or environment-aggressive coating processes (such as eliminating Cr^{VI})... Finally, green manufacturing must tend to preserve natural resources in a march towards circular economy: longer lifetime through wear reduction is a key but disassembling by design for easier recycling, lower water consumption for cooling, new materials development from renewable resources etc. may all imply new or enhanced friction, lubrication and wear problems ; even lightweighting may enhance tribological difficulties – think of thinner sheet forming for instance.

The “environmentally friendly tribological solutions” session of ICTMP 2020 intends to highlight all *tribology contributions to the decrease of the environmental imprint of manufacturing activities*. It therefore welcomes papers on all the above topics. Furthermore, it will accept papers devoted to tribological studies in manufacturing or micro-manufacturing of environmentally friendly systems, in energy production (fuel cells, windmills...) or other industrial sectors. This can be summarized by “tribologists’ efforts both for a greener manufacturing industry and in manufacturing for a greener industry”. Topics may include (non-exhaustive list):

- energy efficiency in forming, finishing or assembling processes : analysis of tribology-based energy saving mines in manufacturing and assembling workshops ; monitoring friction, wear, surface quality in manufacturing processes through sensors, datamining, machine learning...
- tribology for greener manufacturing processes : improved lubrication systems, wear resistant manufacturing tools, waste reduction through nearer net-shape forming...; green lubricants and coatings;
- tribological problems and solutions in manufacturing using materials from renewable resources;
- tribological problems and solutions in the manufacturing of systems for a green industry.

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ICTMP 2020 website : <https://sites.google.com/view/ictmp2020/home>

Co-Located Conference :

53rd CIRP Conference on Manufacturing Systems, <https://cirp-cms2020.northwestern.edu/>