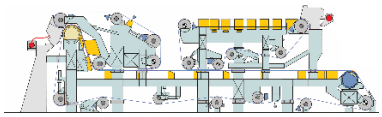
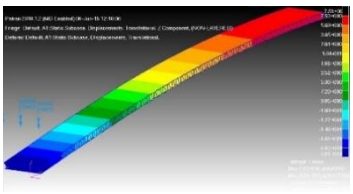
name of the unit:		symbol:
CENTRE OF PAPERMAKING AND PRINTING Lodz University of Technology		CPP https://inpap.p.lodz.pl/
head of the unit:	potential promoters:	contact person:
Włodzimierz Szewczyk, PhD, DSc, TUL Prof.	Svitlana Khadzhynova, PhD, DSc	Mariusz Reczulski, PhD phone: +48 42 631 38 31 mariusz.reczulski@p.lodz.pl

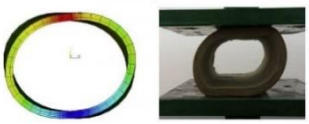
scope of activities:

The main areas of interest and research directions:

- paper machines, printing and converting,
- stock preparation and web consolidation processes: forming, dewatering, pressing and drying,
- laboratory tests of physical properties of paper, board and products made of them, and prediction of their strength properties in real operating conditions,
- research on the impact of design and operating parameters of disc chippers on the quality of chips,
- testing the quality of overprinting in classic and digital printing techniques,
- testing of packaging materials for contact with food,
- testing of printing materials,
- processes of producing printing forms, printing and securing prints,
- ink transfer studies in printing processes.







present activities:

We prepare concepts for the modernization of paper, printing and converting machines in order to improve the quality of produced papers and paper products and reduce energy consumption. We test the strength properties of paper, board and products made of them, and the impact of printing techniques on the quality of overprinting. We develop mathematical models to predict the mechanical properties of board and packaging made of them based on the mechanical properties of the raw materials used in their production.

We carry out experimental research on the press felts dewatering process using the air blowing method to increase the production of paper machines. We perform numerical simulations of the wood chipping process in disc chippers in order to improve the quality of wood chips. We develop research methods to verify the presence of potentially migrating compounds from packaging materials into food. We carry out experimental research and numerical simulations to improve the quality of overprinting in classic and digital printing techniques.

future activities:

Based on modern research methods and the latest research results, work will be carried out on extending the existing mathematical models.

The portfolio of research groups was created as part of the Programme "STER" – Internationalisation of doctoral schools" as part of the realization of the project "Curriculum for advanced doctoral education & taining – CADET Academy of Lodz University of Technology".

publications/patents, awards, projects:

- L. Czechowski, G. Kmita-Fudalej, W. Szewczyk: "The strength of the egg trays under compression – numerical and experimental study", 2D Materials, ISSN: 2053-1583, vol.13, no. 2279, 1-15, (2020)
- G. Kmita-Fudalej, W. Szewczyk, Z. Kołakowski: "Calculation of honeycomb paperboard resistance to edge crush test". 2D Materials, ISSN:2053-1583, vol.13, no.1706, (2020)
- W. Kryłłowicz, W. Szewczyk, J. Świniarski, P. Pełczyński, „A blower for high temperature fumes in paper machine". Engineering Structures 196 (2019)

We have conducted and are conducting the following research projects :

- Project no. GEKON2 / 05/268278/22/2016: "Increasing the recycling of waste paper and reducing energy consumption and improving the efficiency of the drying process in the paper machine through the use of micro-nozzle systems " – project financed by the National Centre for Research and Development and National Fund for Environmental Protection and Water Management under the Program GEKON (2016-2017)
- R&D projects on pro-environmental packaging for the RTV/AGD industry with the technology of their production (European Regional Development Fund, Smart Growth Operational Programme, Measure 1.1)

keywords:

paper machine, printing machine, converting machine, dewatering and drying of paper and board, strength properties of paper and board, printing techniques, mathematical models

list of internship proposal in this research team:

- Ink transfer tests on IGT printing simulators.