SPEAKER

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BIOGRAPHY
Hannes Vomhoff is presently working as a senior project leader at Holmen Paper in Stockholm, Sweden. Prior to that, he worked for about 25 years as a research manager at the Swedish Pulp and Paper Research Institute with the optimization of different papermaking unit processes, and the characterization and quantification of product and process variation.

LECTURE

Analysis of process variations in the paperboard production based on thermography

Thermography is an established technology to detect process variations in the papermaking process. Here, the radiation in the infrared wavelength range that is emitted by an object is measured and quantified as temperature. This method can be used, for example, for the detection of a variation in web moisture and/or grammage, as this variation will cause a local difference in temperature.

The minimization of product variation is a key issue when increasing the efficiency of the industrial papermaking process. Product variation are commonly caused by process variation. Modern infrared cameras allow the recording of the entire produced web with a spatial resolution of approximately 1 centimeter. The recorded temperature variations can be analyzed using image analysis in order to quantify process variation both in machine and cross direction of the paper machine. The results of this analysis can then be combined with process knowledge, in particular on the drying process, in order to identify the root cause of the variation.

In the present work, thermography was combined with image analysis to quantify process variations. This methodology is illustrated with results from case studies that were performed in industrial scale. The methodology allowed, for example, for the separation of variation caused by variation in pulp suspension concentration and pressure pulsation in the headbox.