

Prof. Janina Mazierska

History Committee Chair

Ihr Zeichen:

Ihre Nachricht vom:

Mein Zeichen:

Meine Nachricht

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Evaluation of the sNOVA Milestone Proposal for Possible Approval as an IEEE Milestone

Dear Professor Mazierska,

With this letter, it is my pleasure and honor to evaluate the sNOVA system milestone proposal for possible approval as an IEEE Milestone. I have worked with the semiconductor industry in Europe, Asia, and North America for more than 25 years in different academic positions. I have advised several semiconductor companies from the US and from Europe and know the automation efforts of this industry quite well. I have been actively worked with leading academic researchers from Taiwan in the modeling and analysis of semiconductor manufacturing community over the last 15 years.

The suggested wording of the Plaque Citation is correct and accurate since the quality-analysis system sNOVA pioneered the digital transformation of semiconductor manufacturing through allowing the use of artificial intelligence (AI) and big data technology.

The proposal is of sufficient substance and accuracy to support the Citation. The main achievements are well described. The historical significance of the work is well presented. The major obstacles needed to overcome are well described. It is also well described why the achievement was successful and impactful. The unique features of the system are also discussed in an extremely convincing manner.

The proposed milestone represents a significant technical achievement due to the following reasons:

1. Based on the sNOVA system, the semiconductor company Macronix took the lead in promoting the full computerization of semiconductor wafer fabrication facilities.
2. The system enabled a data-driven management which qualified the company for products of highest quality and achieving a maximum productivity.
3. The system is deeply integrated with workflows and work environments.
4. The sNOVA system provides various AI models which allow for actively detecting abnormal situations in an automated and efficient manner and correcting them promptly.
5. The technical achievements are reported in various academic and professional publications. Several patents and awards are the result of the technical achievements.



The sNOVA system resulted in the following successes for Macronix especially and Taiwan's semiconductor industry in general:

1. Macronix has become the world's first memory company to measure product defect rates in parts per billion rather than in parts per million.
2. High product quality enabled Macronix to supply the aerospace industry which is one of the most demanding industrial environments with respect to quality.
3. The sNOVA system is the core system in Macronix's wafer manufacturing and a key component of Macronix's manufacturing competence.
4. The concept of the sNOVA system is often seen as the foundation of the Industry 4.0 vision in Taiwan's semiconductor industry.

Overall, I strongly support the proposal of sNOVA to be considered as an IEEE Milestone.

Yours sincerely,

(Prof. Dr. Lars Mönch)