



Simbeyond

Participant Holland High Tech Japan trade mission



Holland High Tech
Global Challenges, Smart Solutions



The Holland High Tech Japan trade mission

12-16 February 2018

co-organised by [Innovatie Attaché Netwerk \(IA-netwerk\)- Tokio](#)



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Simbeyond accelerates the development of advanced materials and high-tech devices as used in state-of-the-art display, lighting and signage applications. Organic electronics, such as the organic light-emitting diode (OLED) displays of present-day smartphones, paves the way for mechanically flexible electronics.

Optimizing efficiency, lifetime and color point of organic electronic devices and getting the most out of the raw materials used remains challenging. This is due to the complex interplay of the electrical and optical processes at the nanoscale. As a result, devices are currently optimized using expensive and labor-intensive experiments. This is often a trial-and-error process and optimization has to start over when new material combinations become available.

Simbeyond provides an unprecedented software tool, Bumblebee, for the development of organic electronic devices that replaces a large part of the costly and time-consuming experimental efforts with computer simulations. The unique approach provided allows our customers to analyze, predict and improve device performance. This leads to a shorter time-to-market and to reduced R&D costs for the electronic devices of today and tomorrow.

The ultimate tool for OLED stack development

Bumblebee is our state-of-the-art kinetic Monte Carlo simulation tool, optimized for molecular-scale simulations of opto-electronic processes in disordered systems, such as OLEDs, OPV and OFETs.

Without Bumblebee

Optimizing device performance and getting the most out of organic materials remains challenging due to the complex and delicate interplay between charges and excitations at the molecular scale. Without simulation, devices can only be optimized with expensive, time-consuming and labor intensive experiments.

With Bumblebee

Bumblebee is the first tool on the market that allows to simulate all relevant electronic and excitonic processes in OLEDs, at the molecular scale, in all three dimensions, and from the nanosecond timescale to the full device lifetime.

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