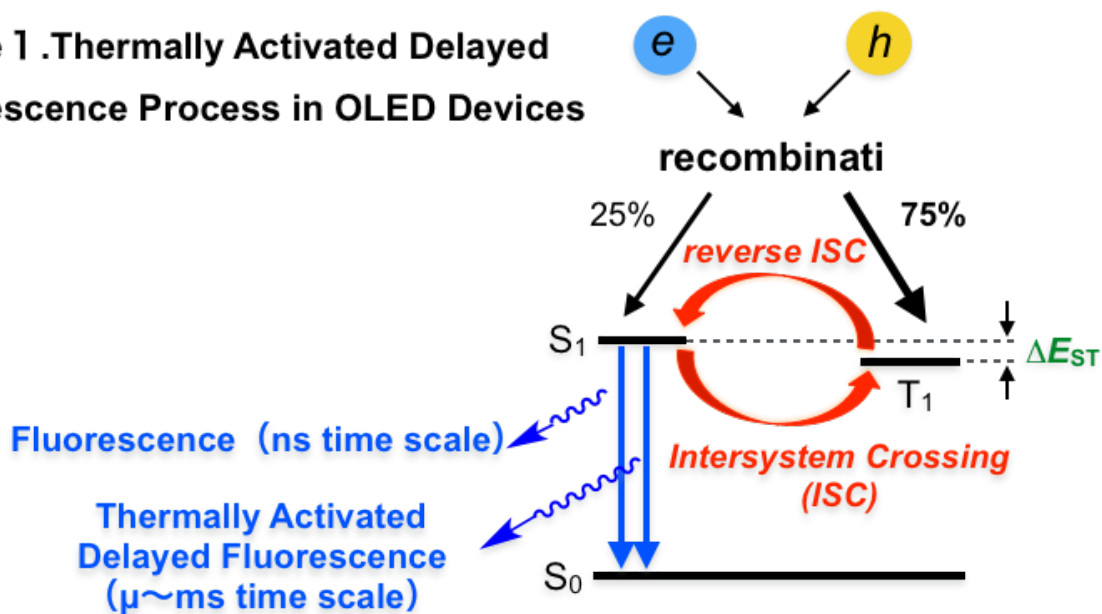


# Researchers develop new thermally activated delayed fluorescence (TADF) materials

June 30 2016

Figure 1 .Thermally Activated Delayed Fluorescence Process in OLED Devices



Credit: Osaka University

An international joint research group has succeeded in developing a new thermally activated, delayed-fluorescence (TADF) material that displays emission of light in colors from green to deep-red.

Through a detailed optical property investigation of this material, this group also confirmed that TADF was achieved through intersystem crossing (ISC) from the singlet excited state (1CT) to the triplet excited

state (3LEA), a world first.

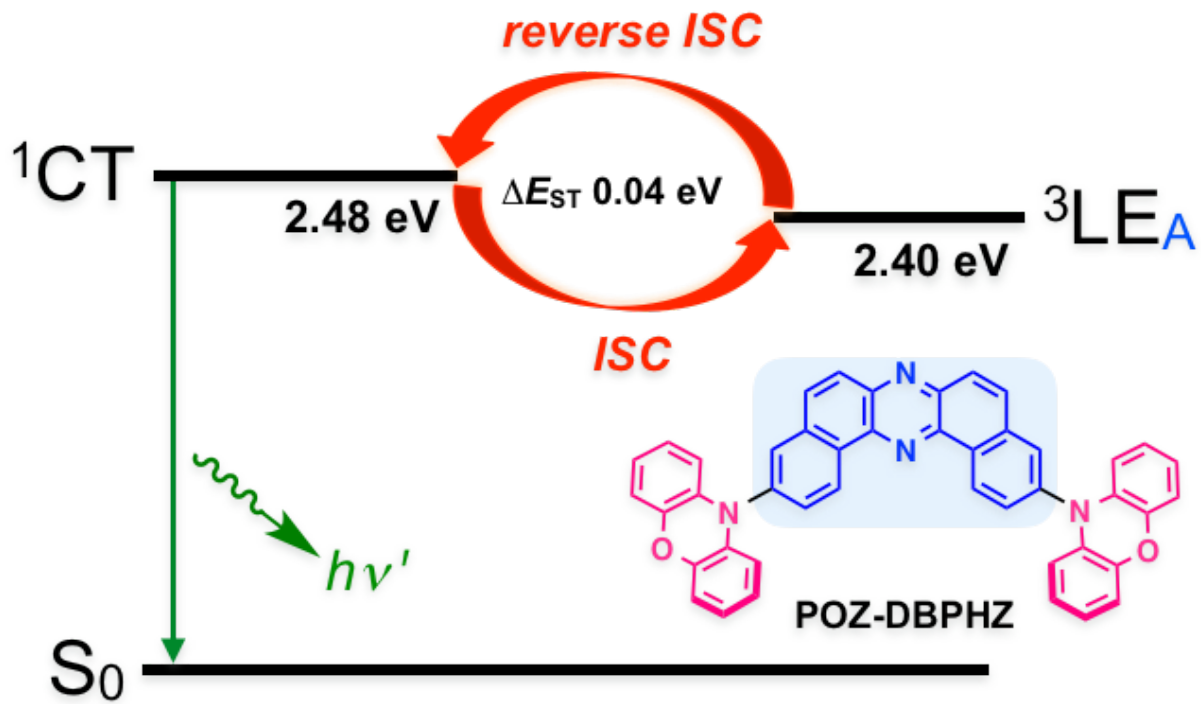
In addition, the external quantum efficiency (EQE) of the organic EL devices manufactured by using these newly developed TADF materials in their emitting layer reached 16 percent, greatly surpassing 5 percent, the limiting value obtained by conventional fluorescent materials.

These results will contribute to the research and development of white TADF [light](#) emitting devices for indoor and outdoor use through combination with TADF materials that emit light in shorter wavelengths (deep blue ~ yellow) which are currently being developed all over the world.

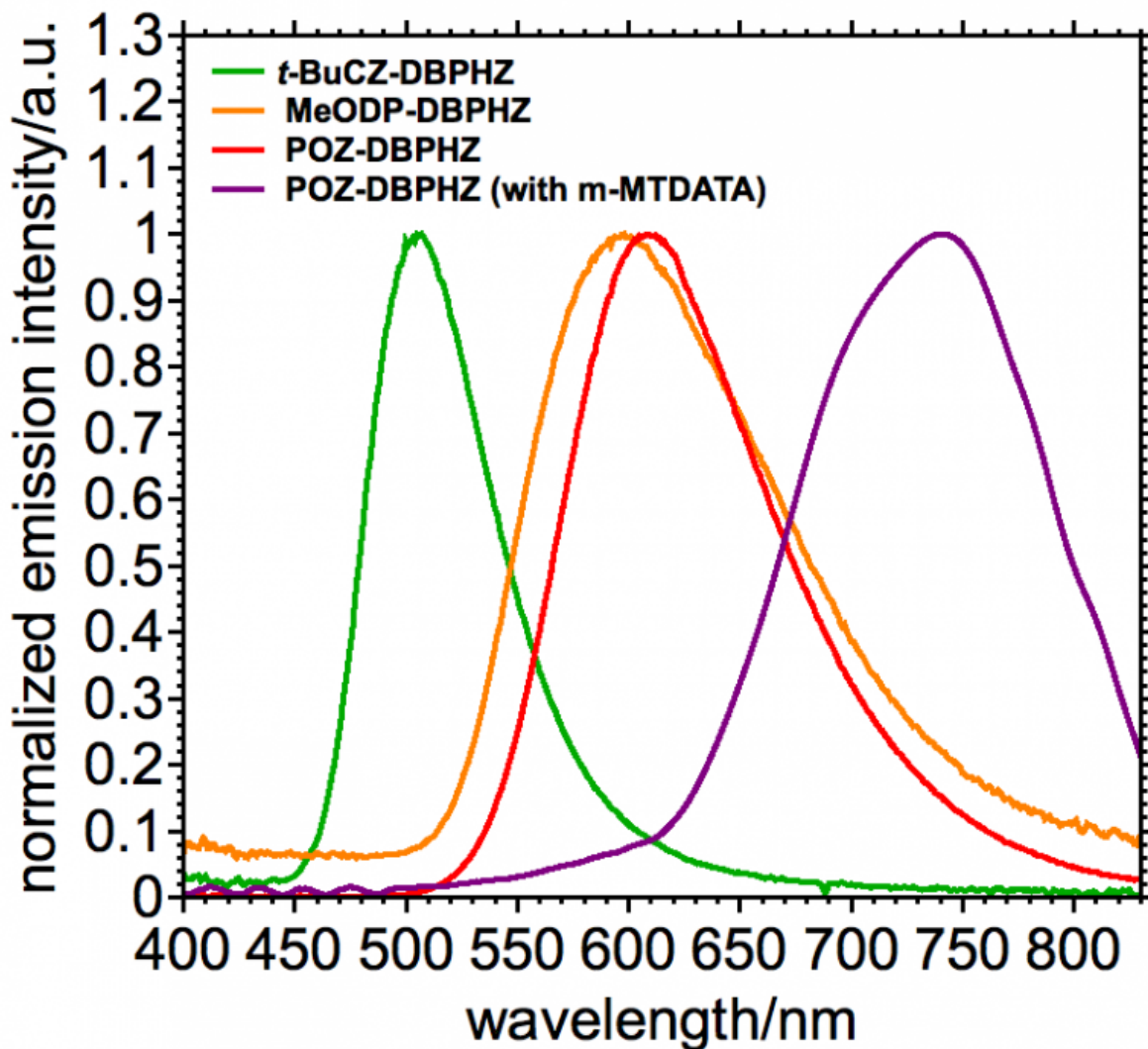
This research was published in the [electronic version](#) of *Angewandte Chemie International Edition* on April 6, 2016 (Germany time).



Credit: Osaka University



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**More information:** Przemyslaw Data et al. Dibenzo[*j*]phenazine-Cored Donor-Acceptor-Donor Compounds as Green-to-Red/NIR Thermally Activated Delayed Fluorescence Organic Light Emitters, *Angewandte Chemie International Edition* (2016). [DOI: 10.1002/anie.201600113](https://doi.org/10.1002/anie.201600113)

Provided by Osaka University

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