

Highly robust tetrazolate based complexes for efficient and long-term stable dye sensitized solar cells†

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We report a new family of ruthenium poly-pyridyl complexes that bear tetrazolate based ligands (either bi-chelate as in **T162** or tri-chelate as in **T120** and **T147**), along with their spectroscopic, electrochemical, and theoretical characterization. Dye-sensitized solar cells (DSSCs) with these complexes show good conversion efficiencies that are highly dependent on the respective electrolyte composition especially in the case of **T120** and **T147**, due to their low lying LUMOs when compared to **N719** and **T162**. DSSCs based on these dyes showed superb stability under light soaking at 70 °C for 2000 h. The **T120** and **T147** based cells retained their initial efficiencies after the long term-stability test, while the **T162** and **N719** efficiencies decreased by 18% and 40%, respectively.