

# New Tetrazolate-based Ruthenium Complexes & Electrolyte System for the Use in Dye-Sensitized Solar Cells

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## *Abstract*

We propose to synthesize different novel ruthenium-based dyes (**T133-136**) and fabricating solar cells using these dyes. The dyes are chemically engineered in a way to harvest more visible light. This will be approached in a way to increase the absorption molar coefficient and extend the absorption into the red for these dyes by the incorporation of a nitrogen-metal bond within these complexes. Moreover, we will be synthesizing new organic soluble sulfide/di-sulfide redox couple that can replace the iodide/triiodide electrolyte, since the latter is corrosive and absorbs in the visible region which affects the DSSC's efficiency negatively.