# $TiO_2$-Based Photovoltaics: The Grätzel Cell

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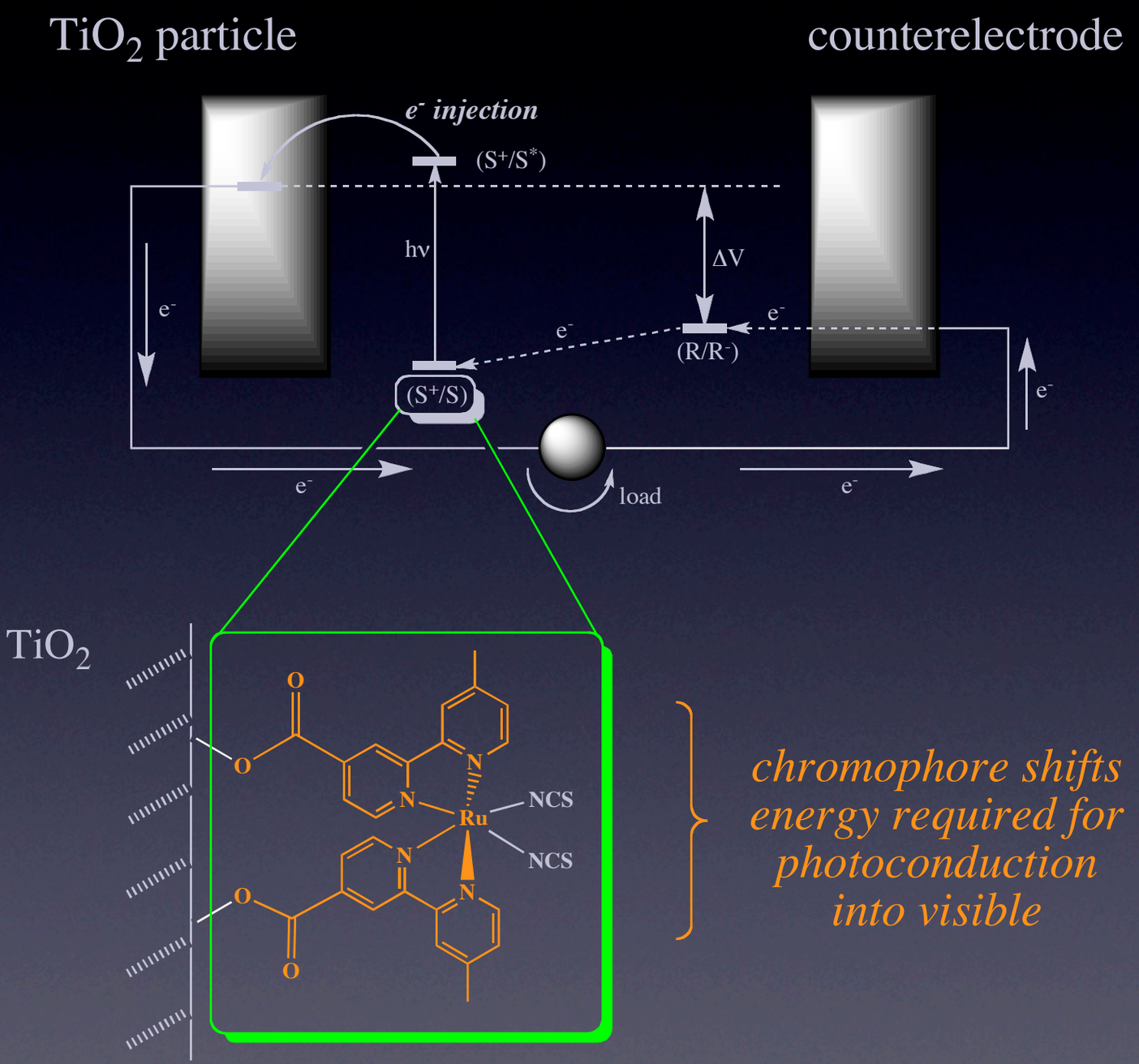


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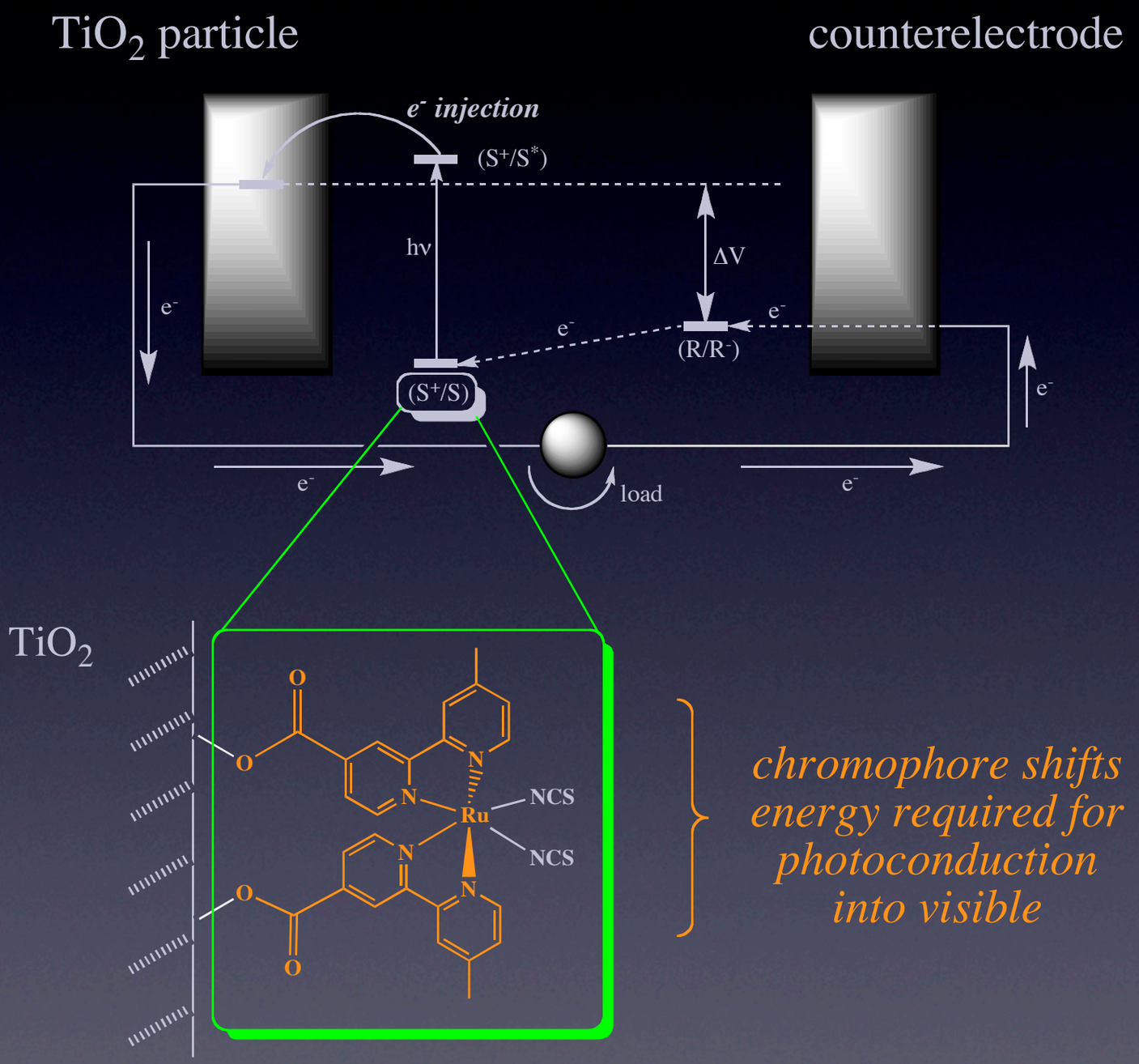
- broad-based utility tied to cost reductions, significant improvements in overall efficiency, and scalability

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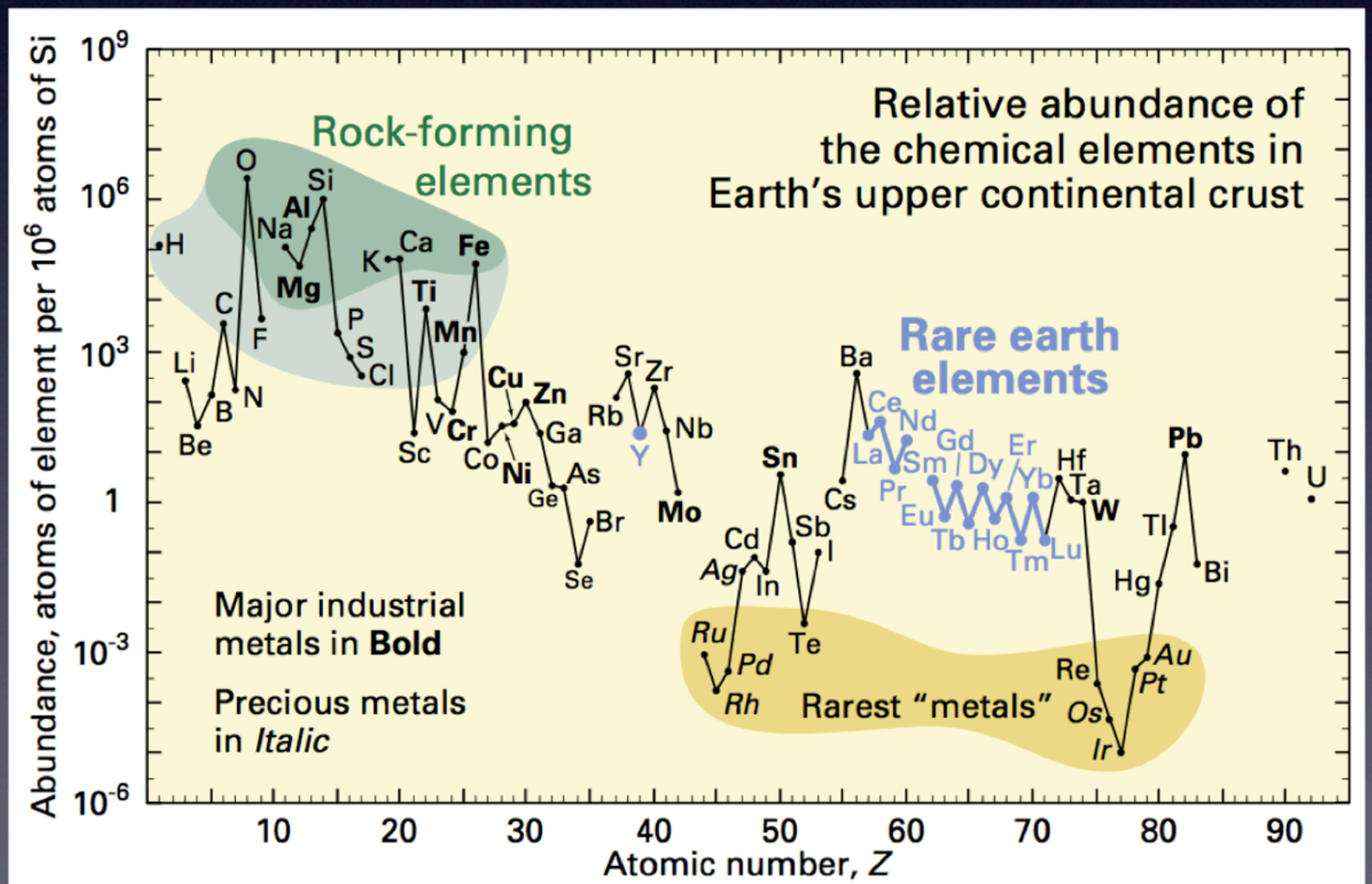

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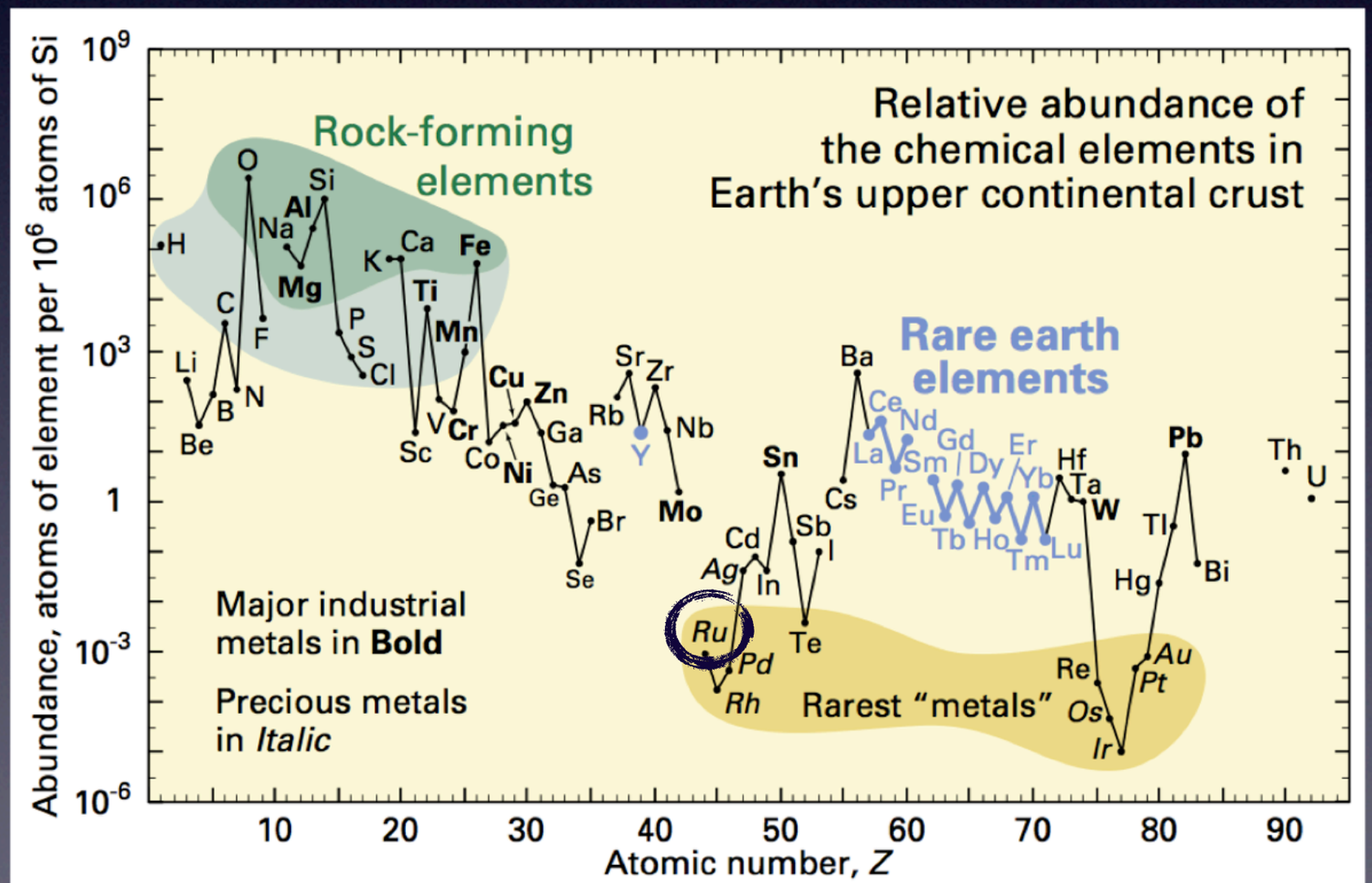

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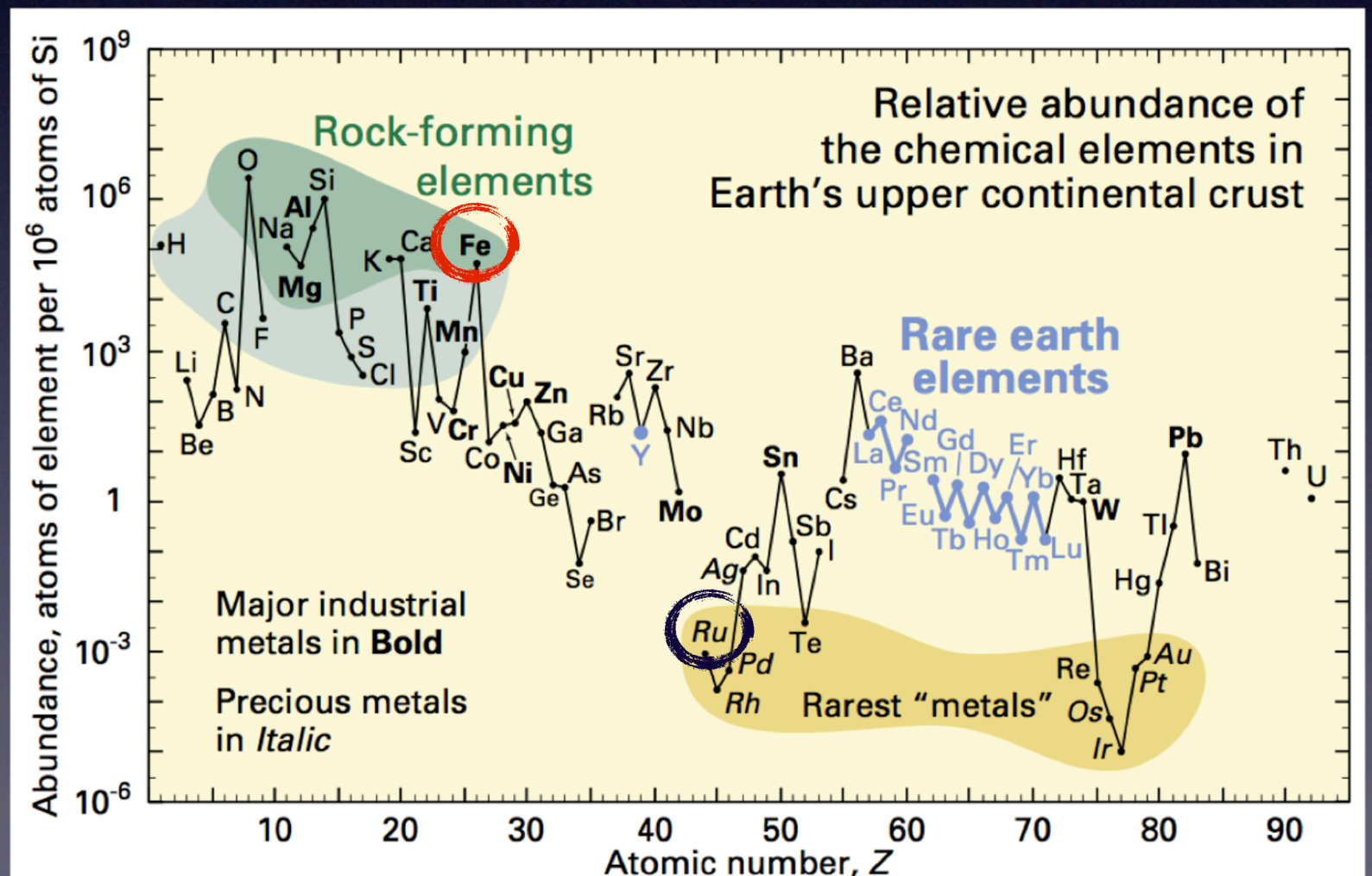

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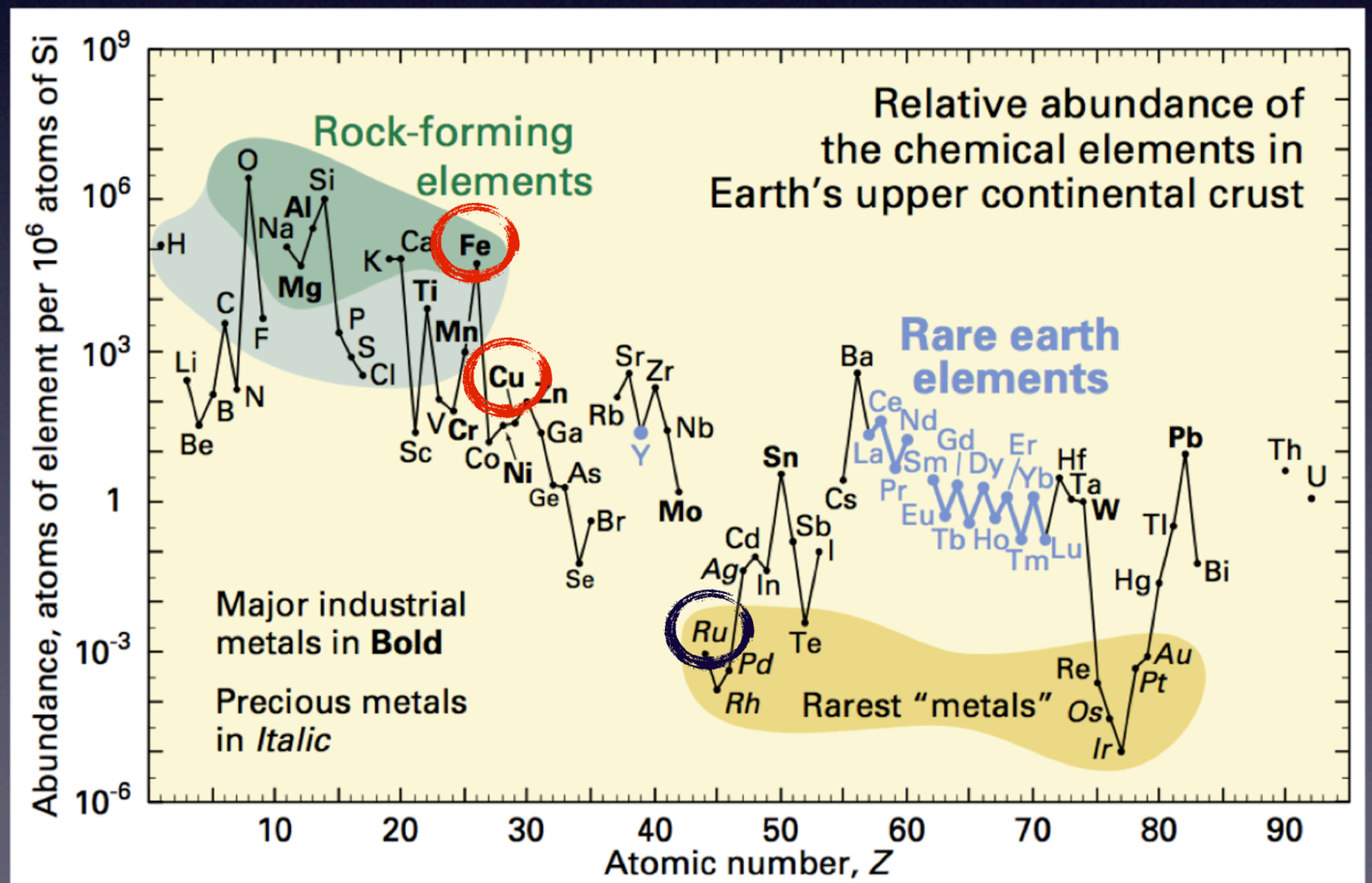

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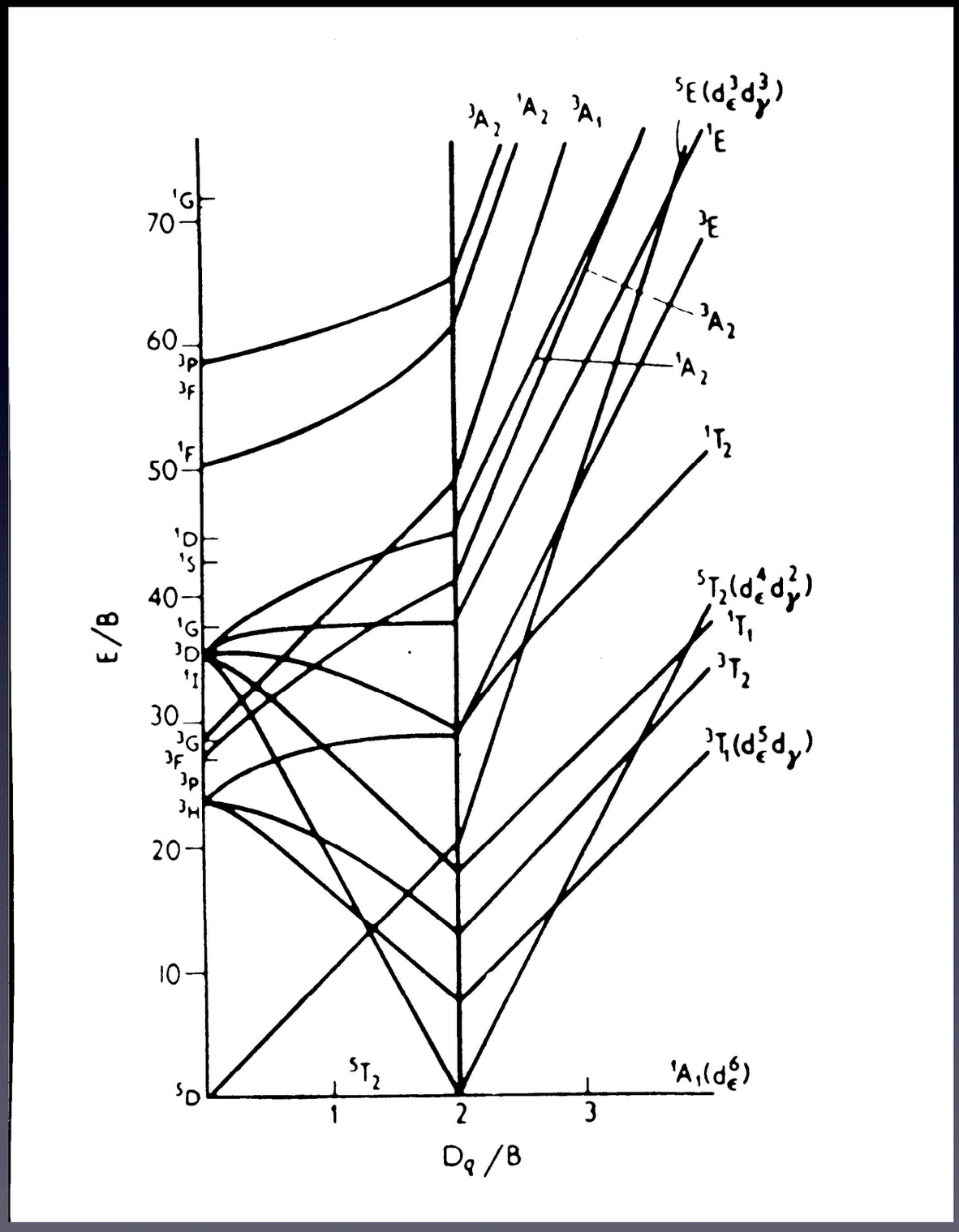

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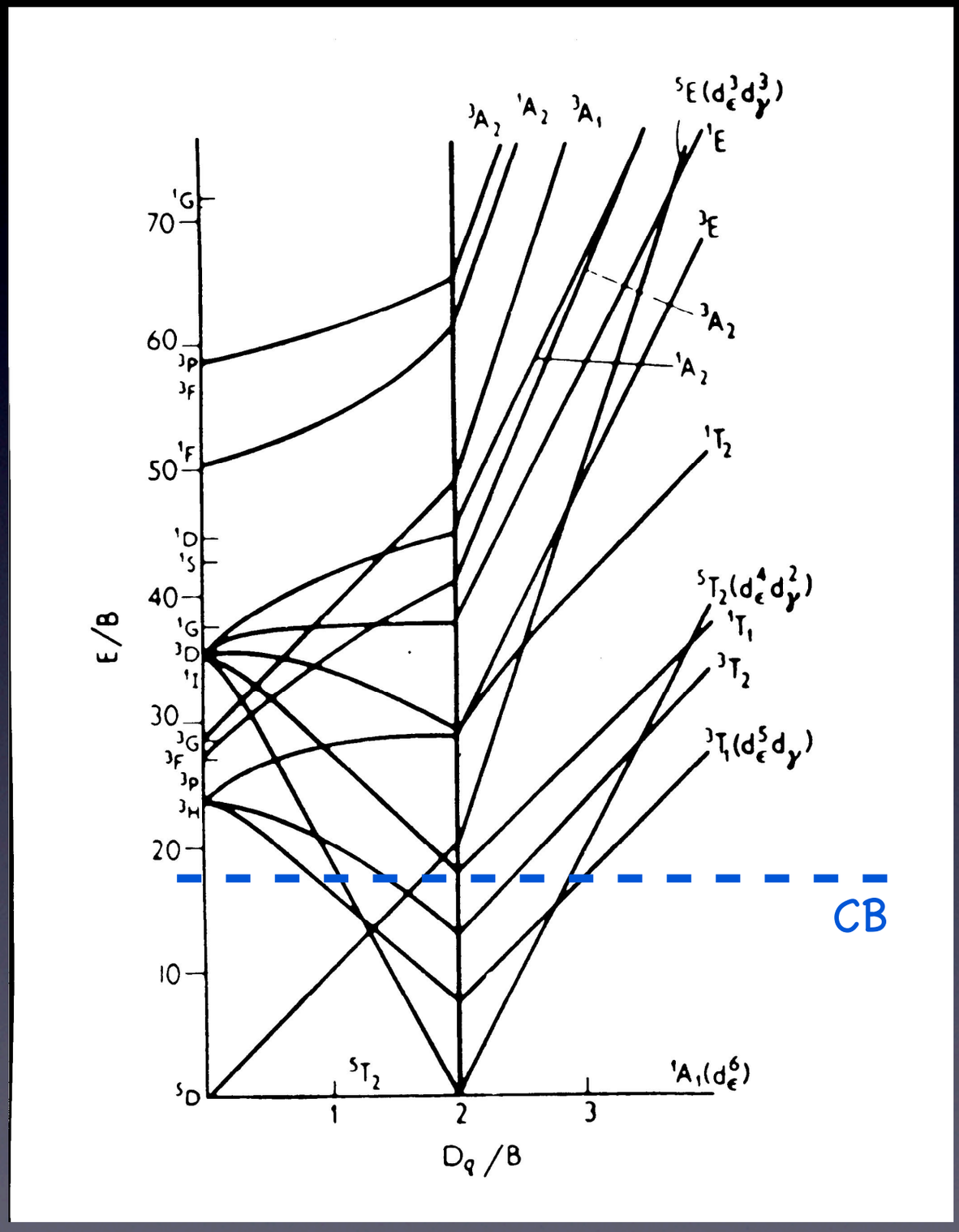

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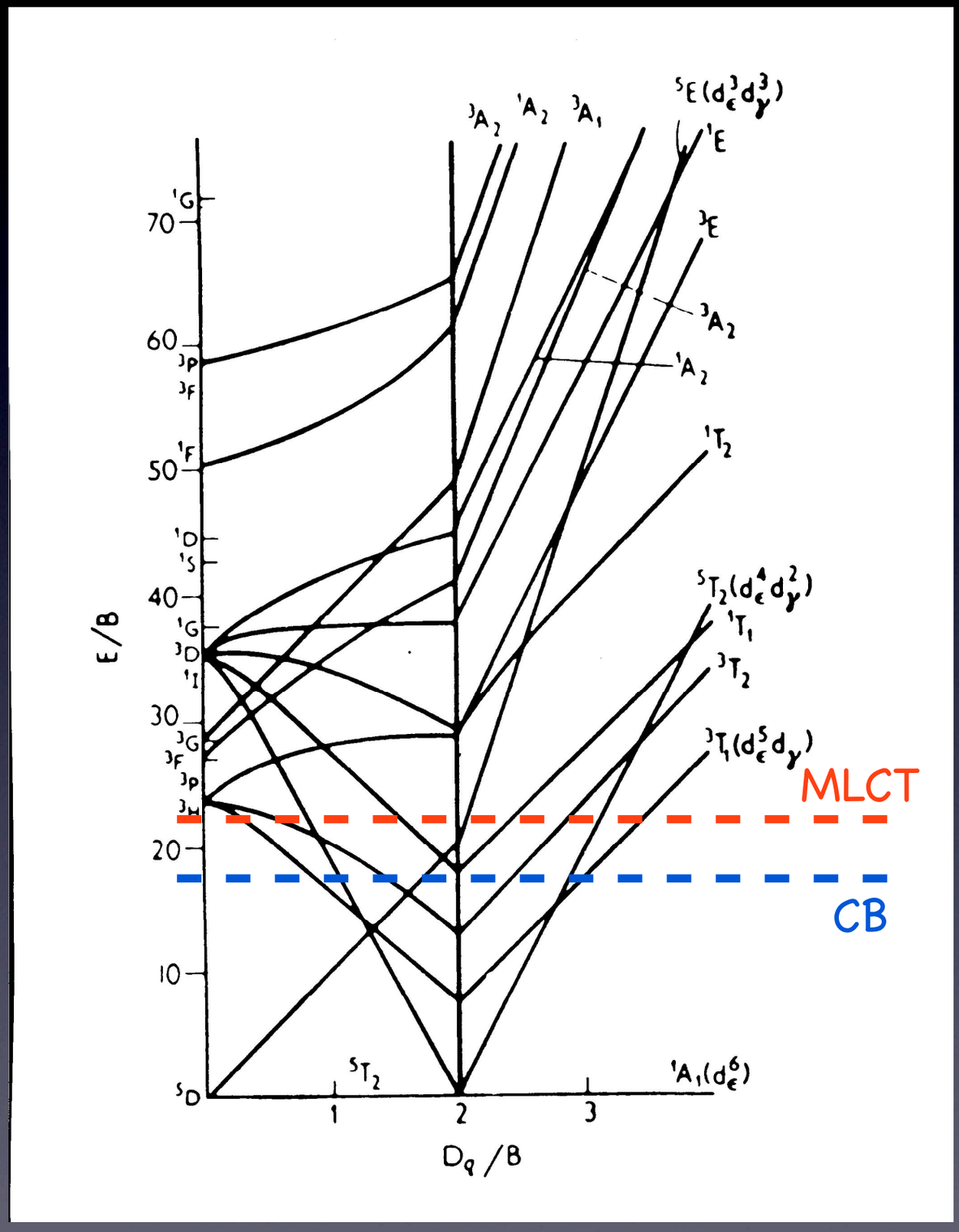

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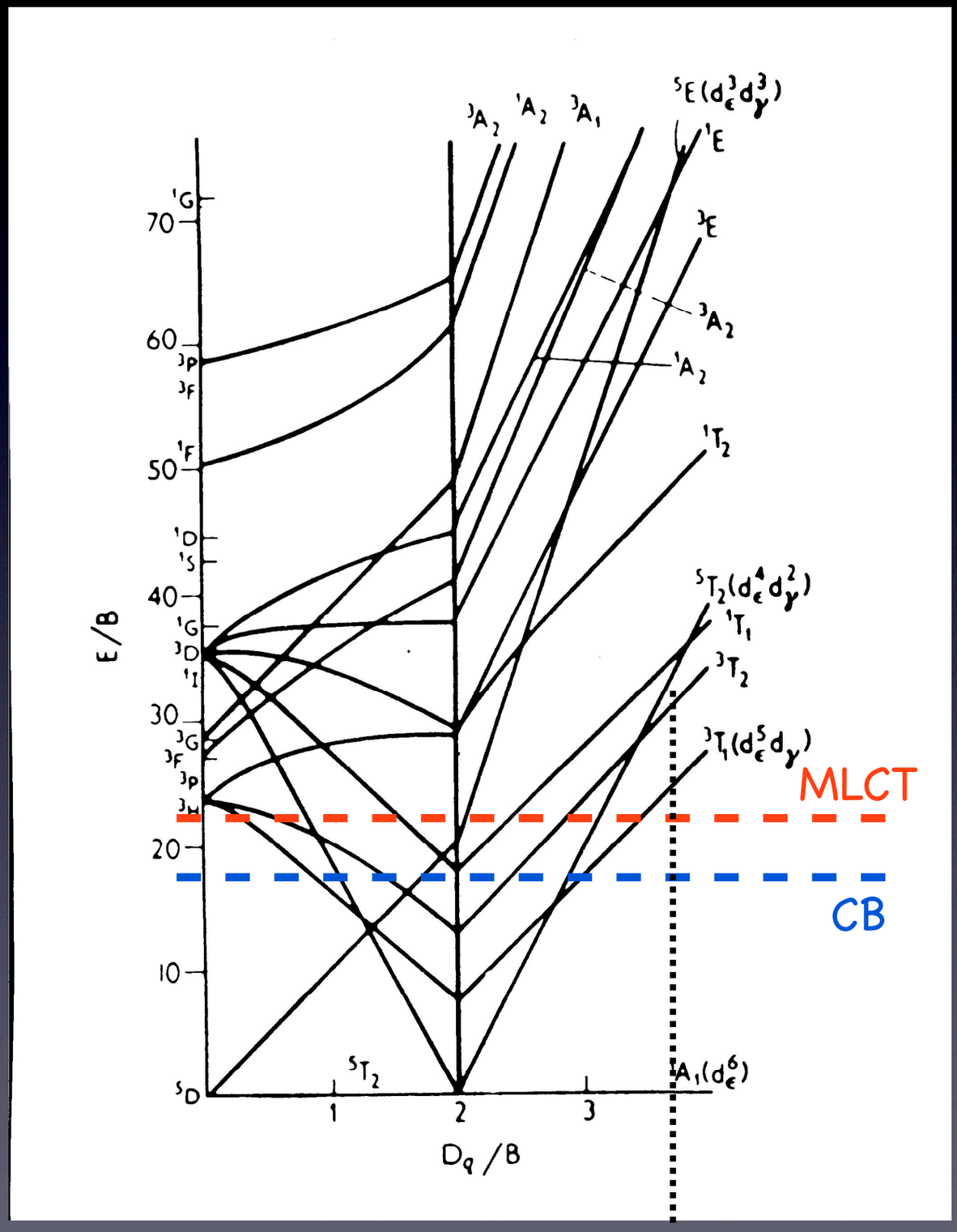

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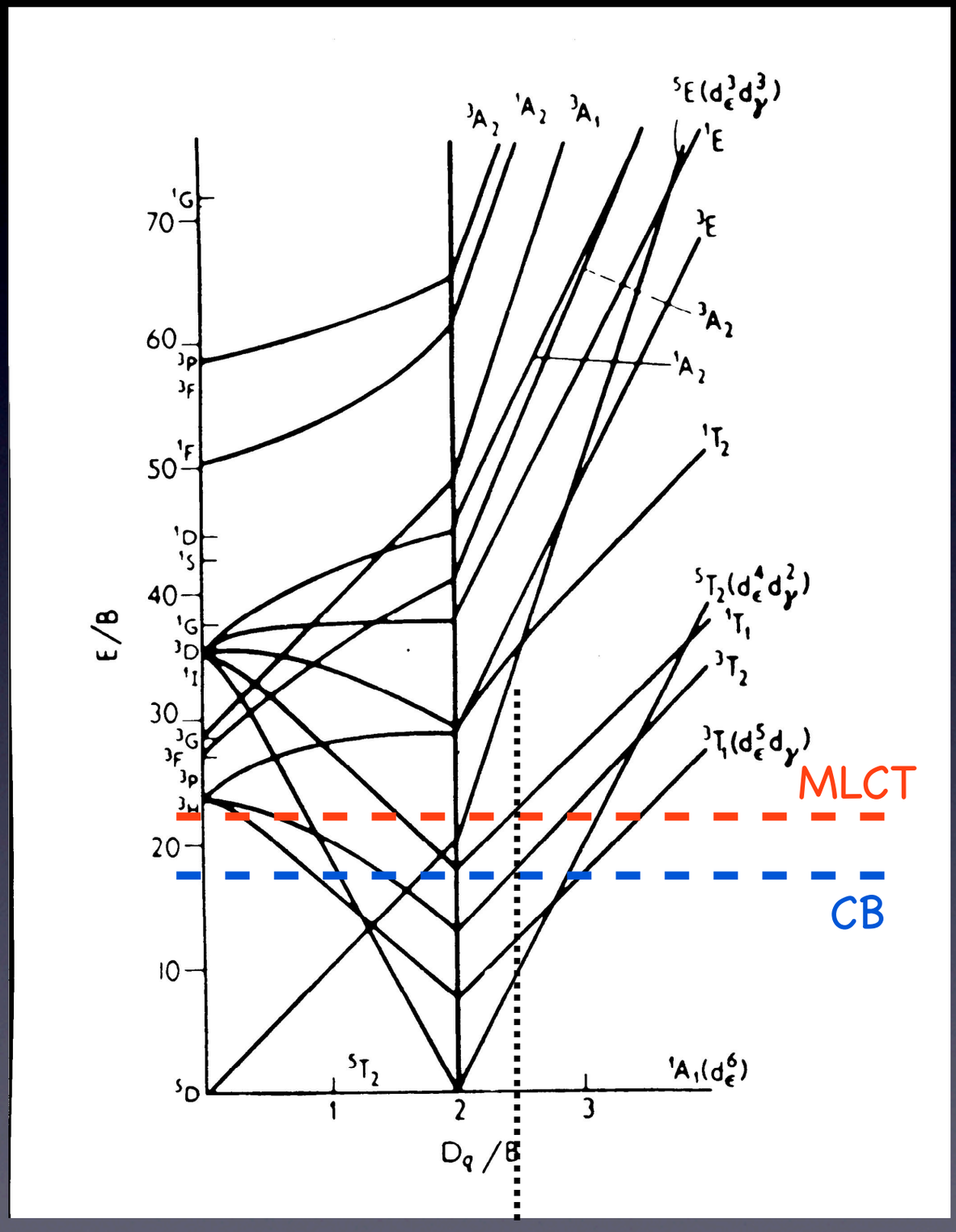

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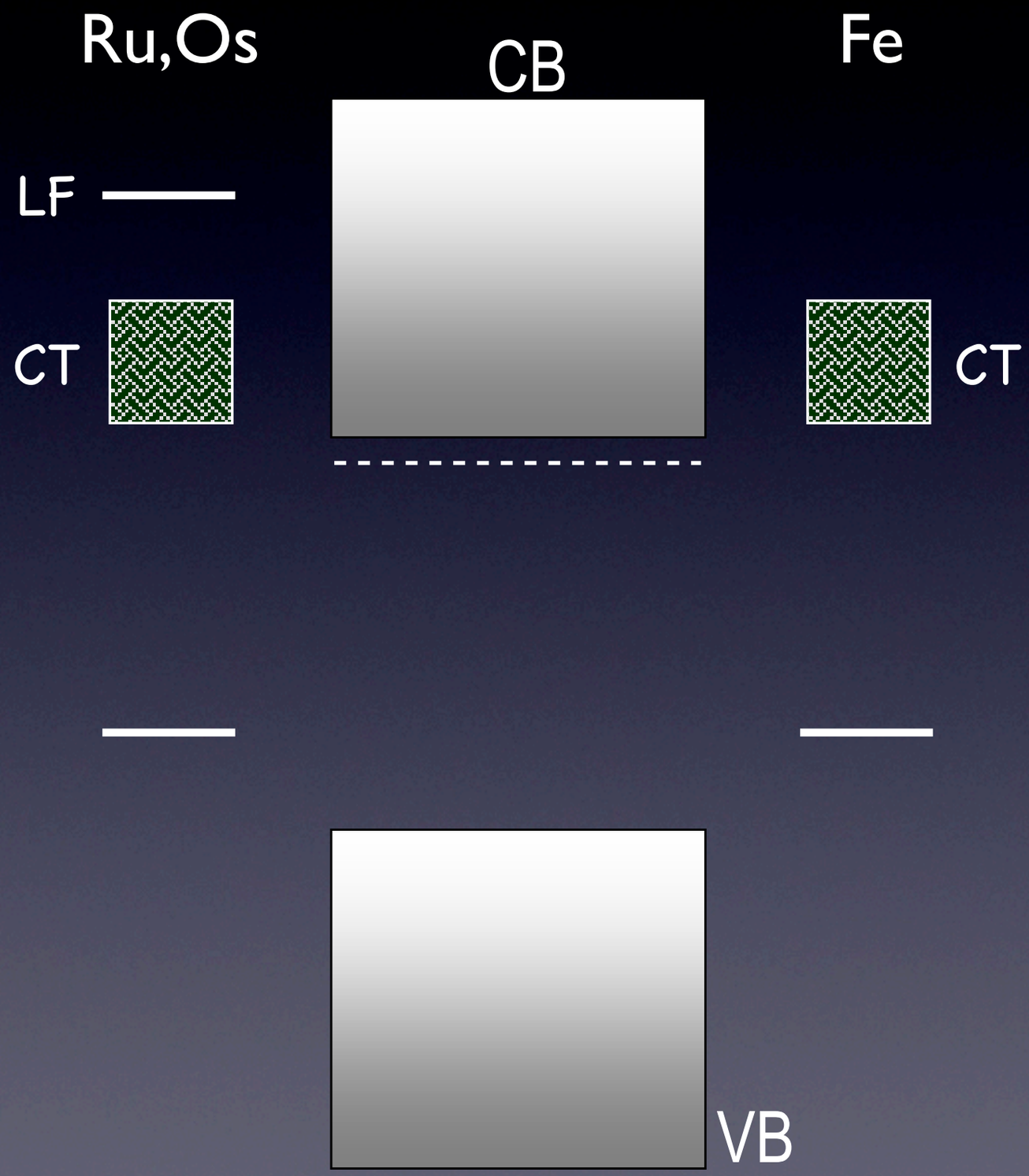


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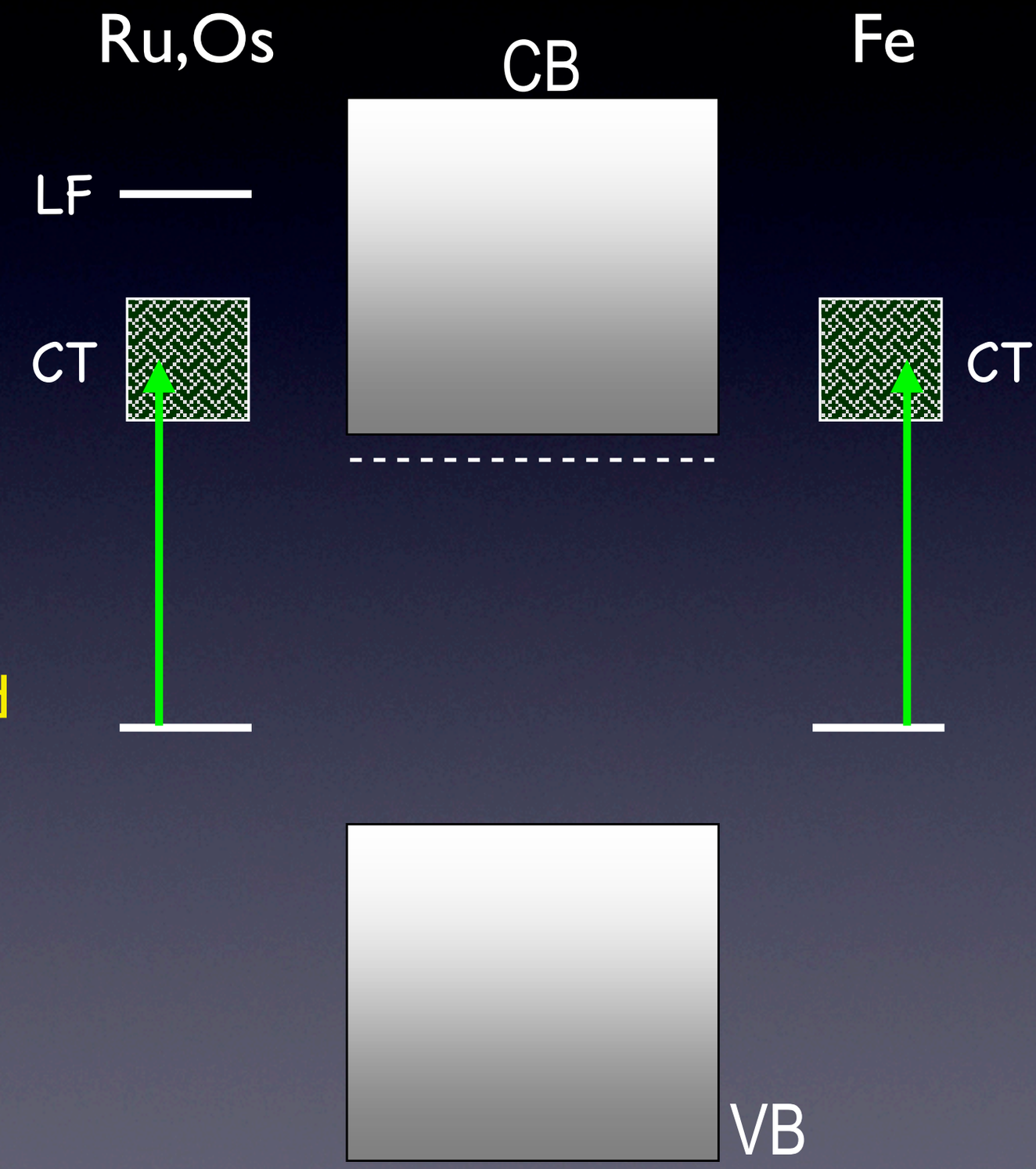

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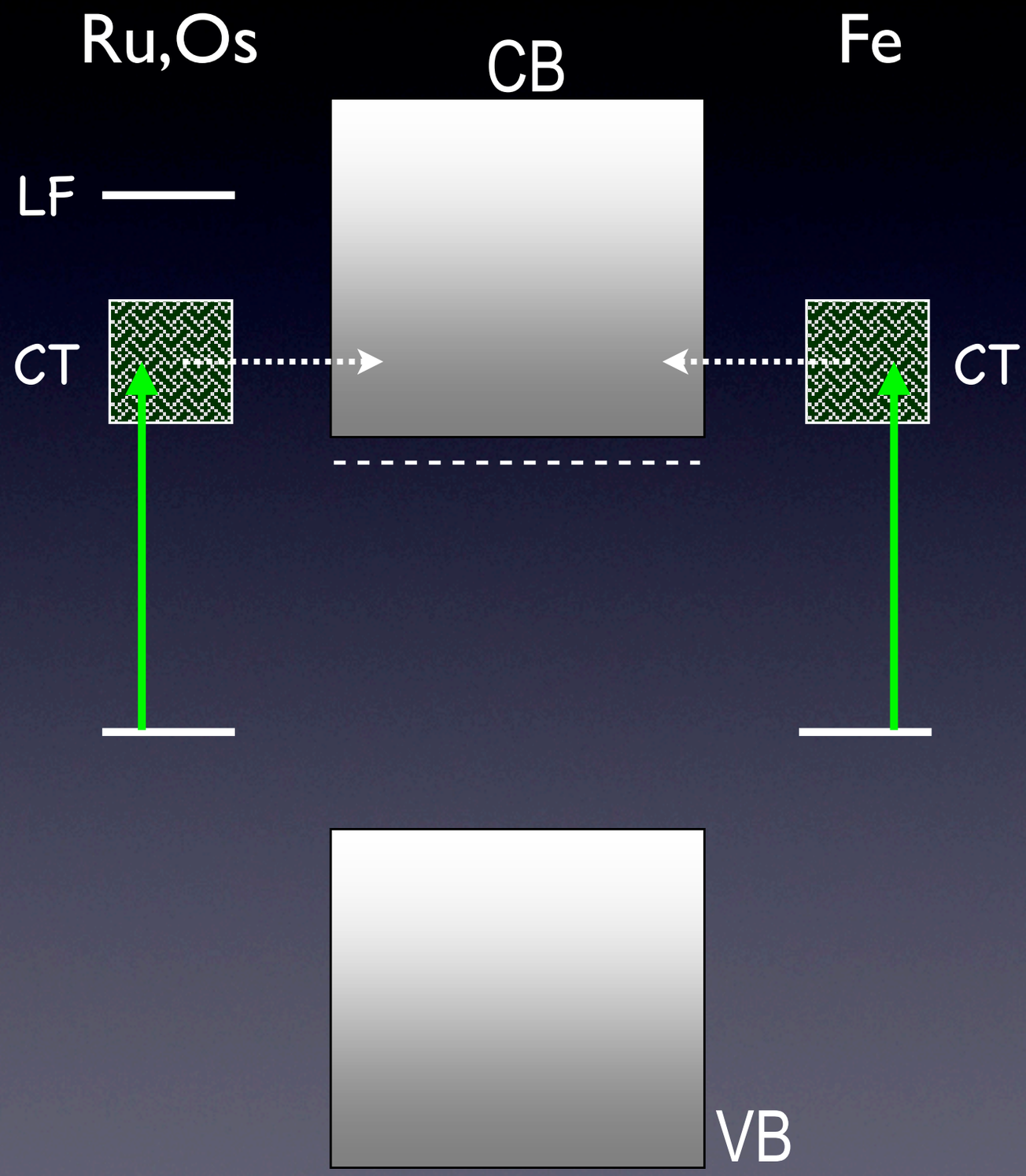

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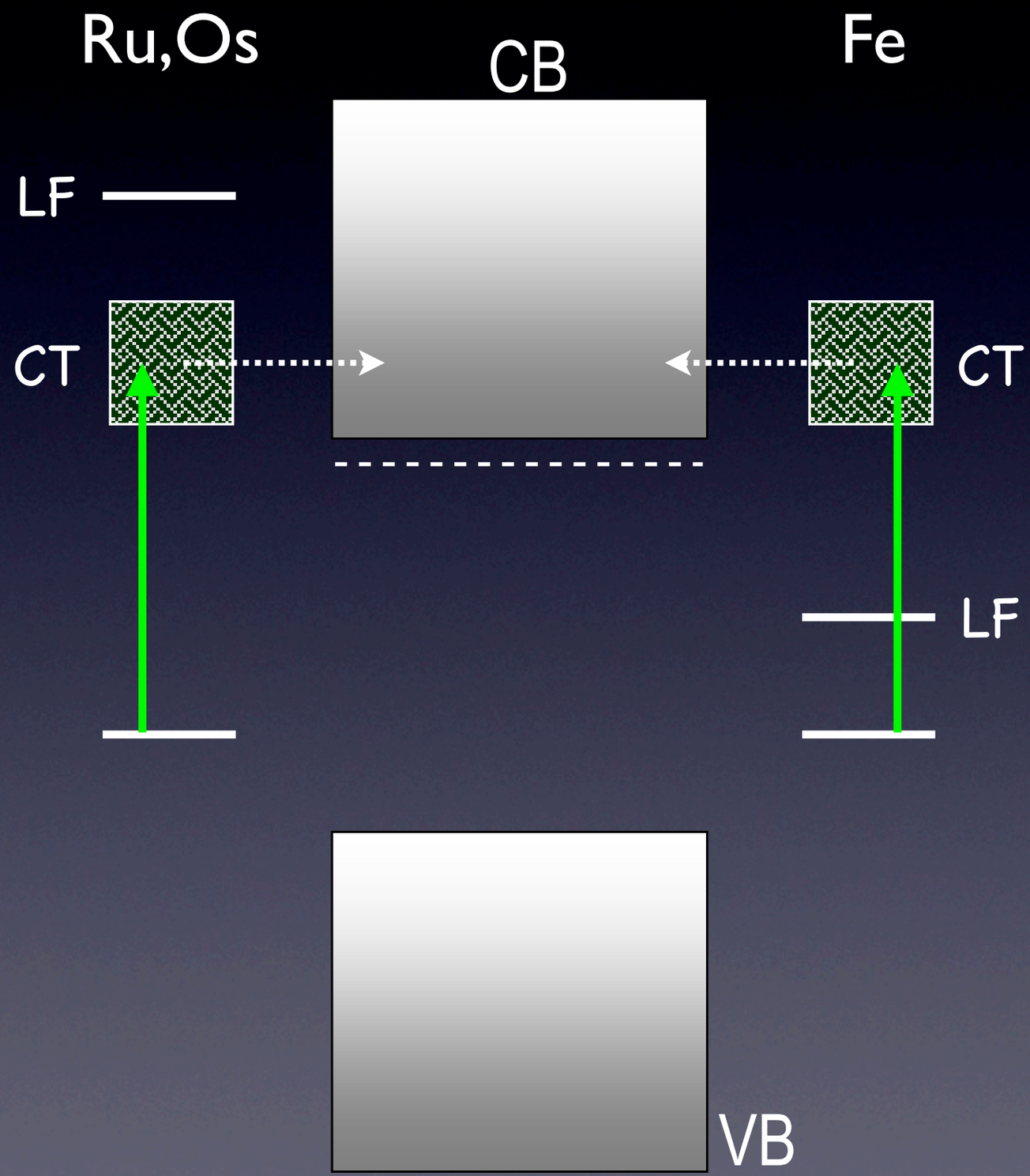

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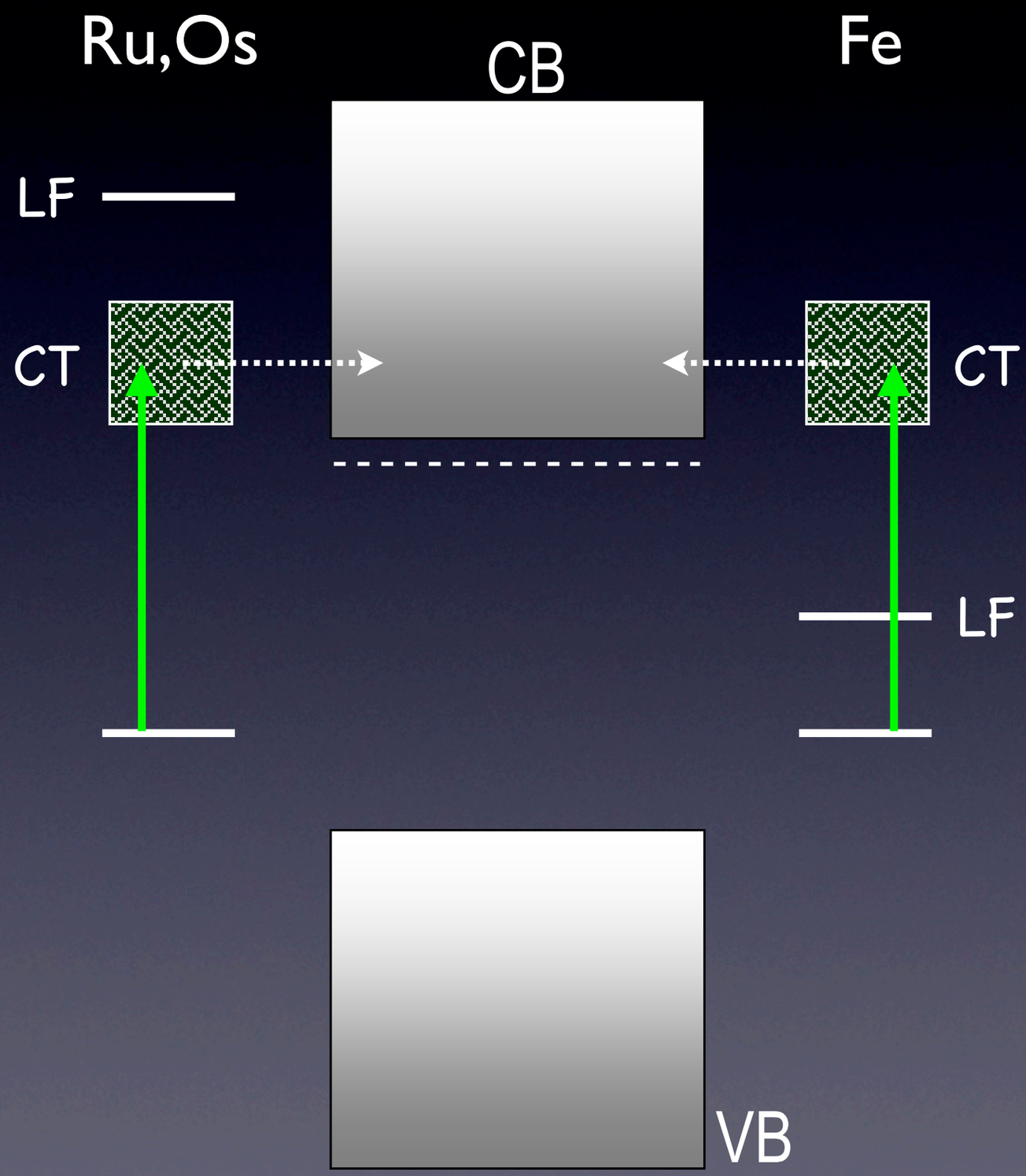

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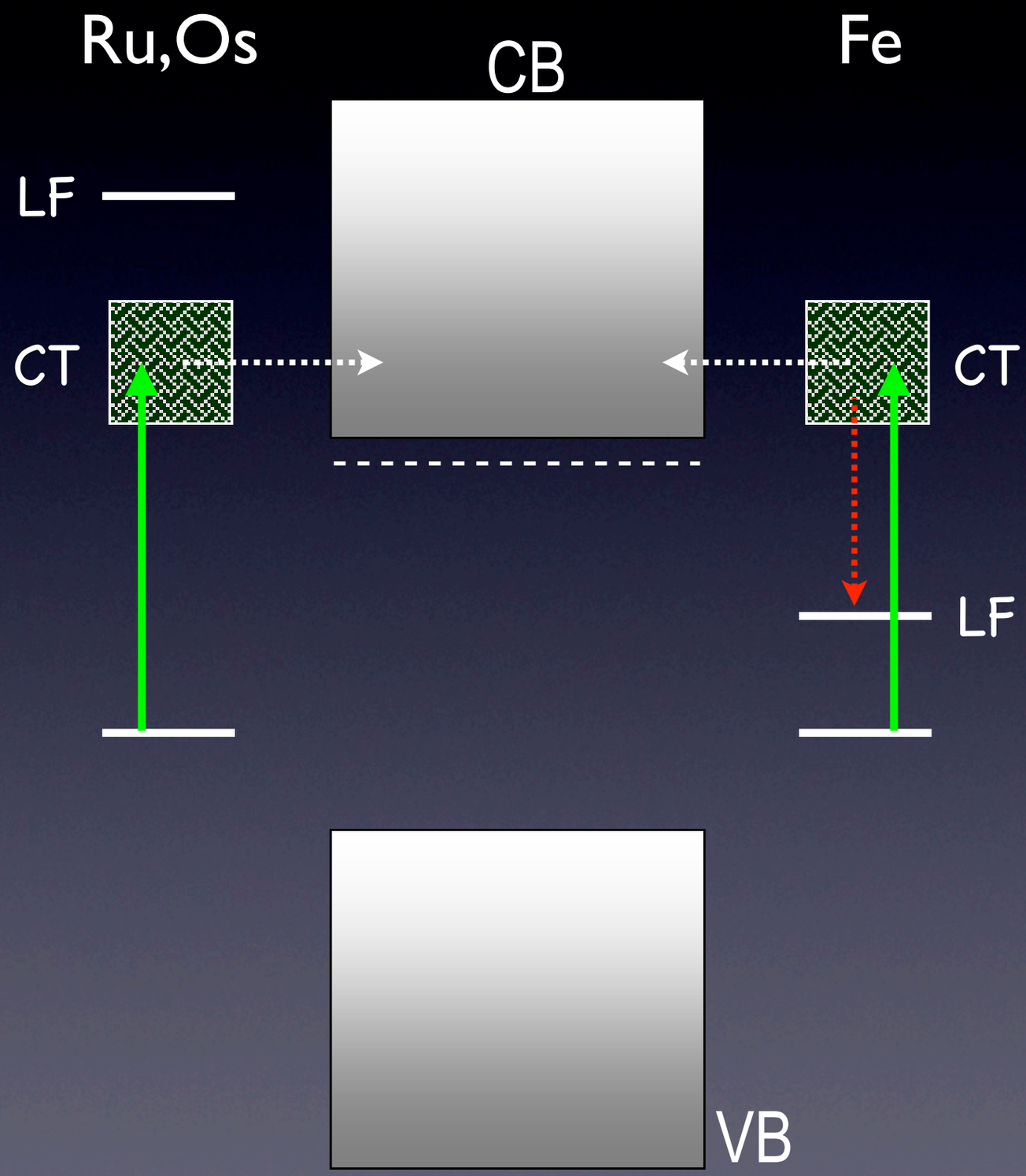

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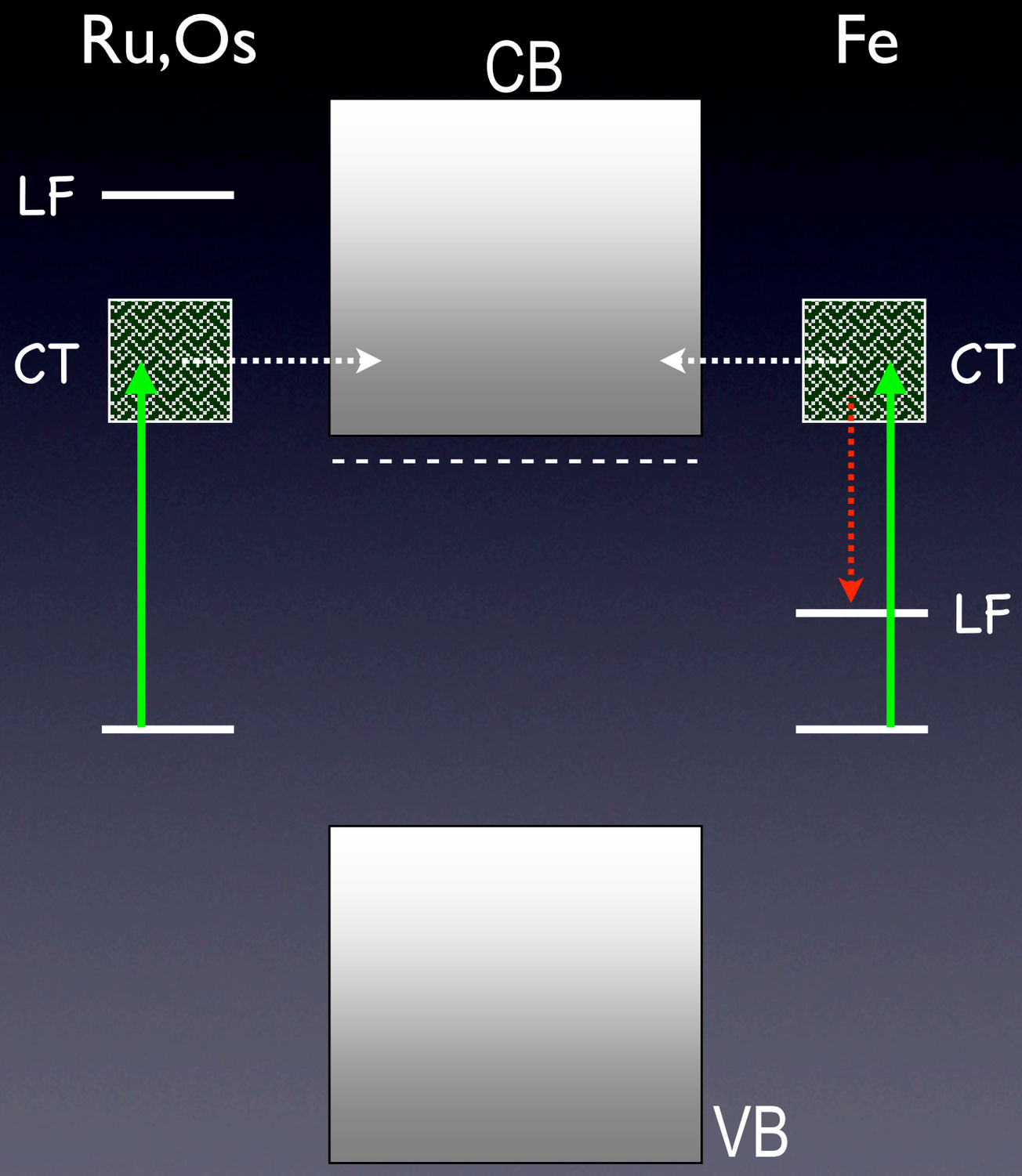

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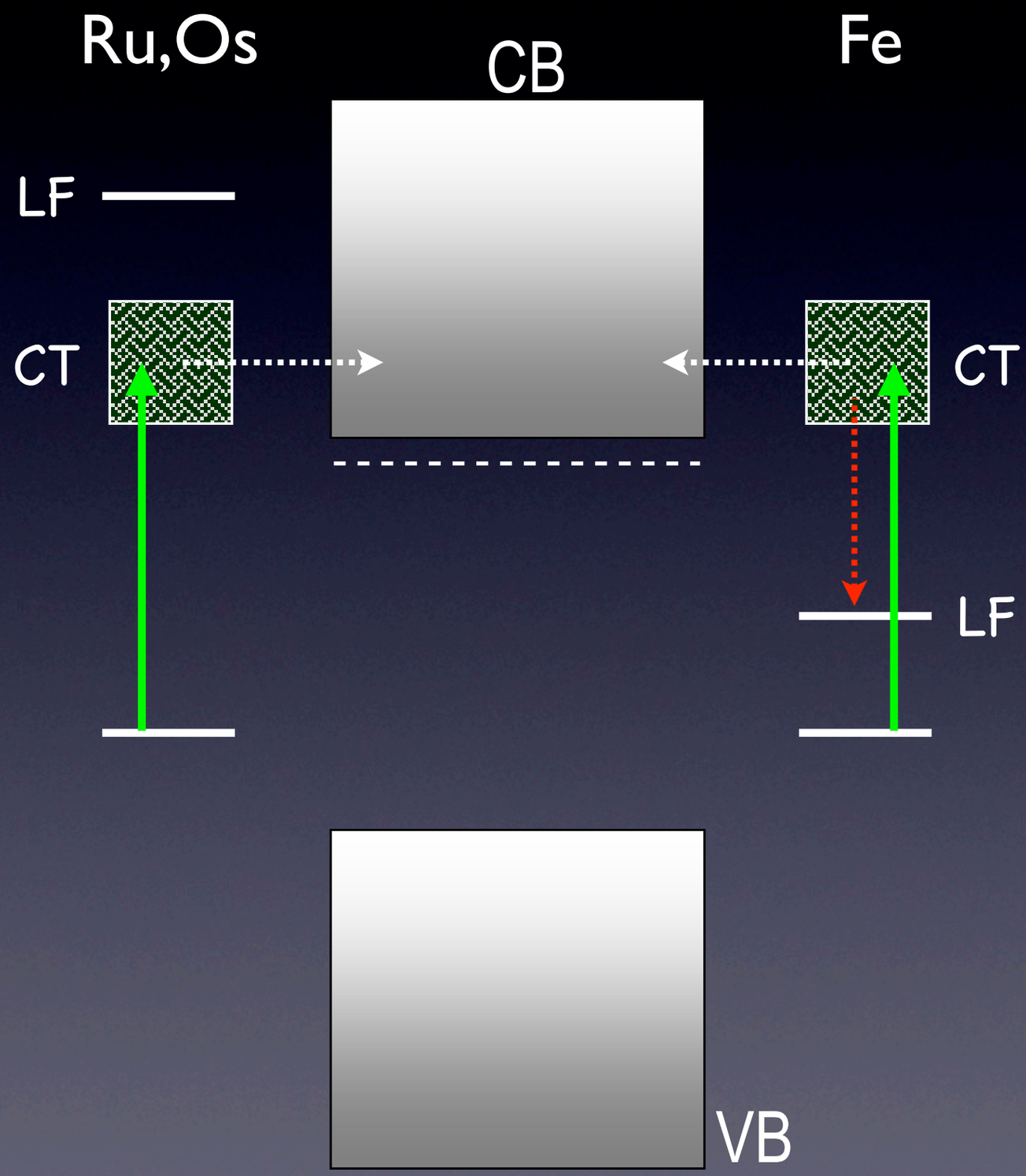

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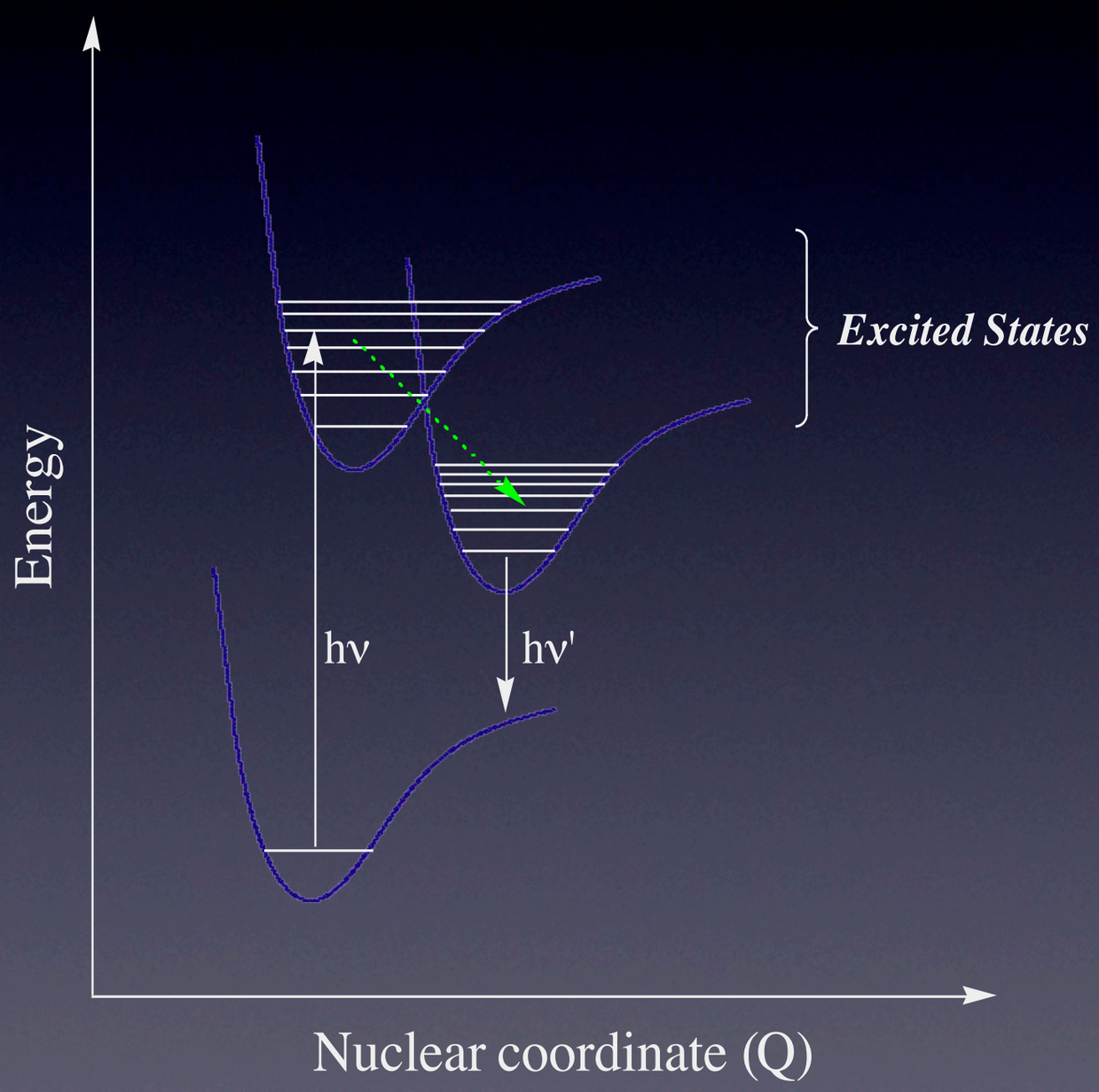

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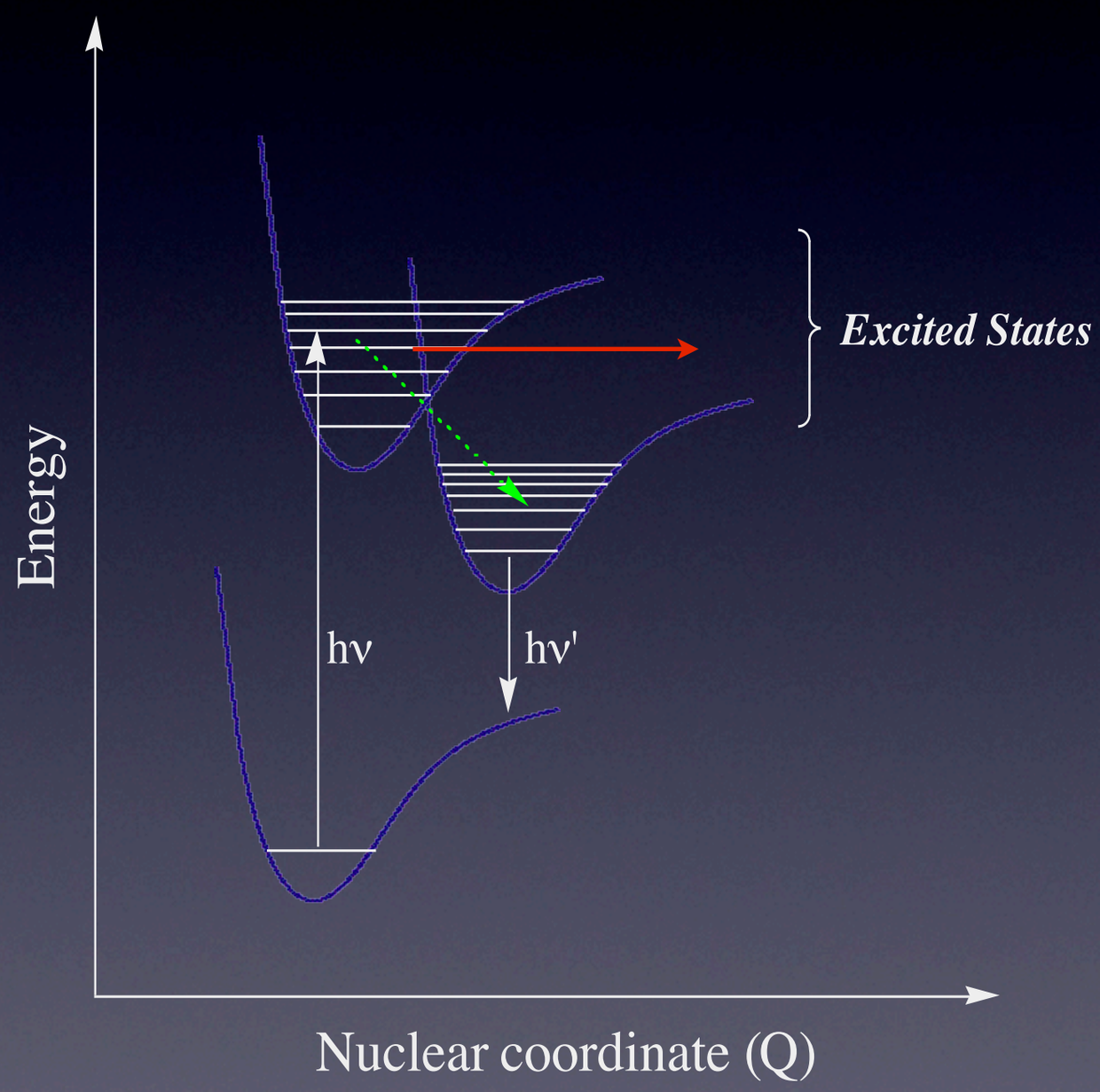

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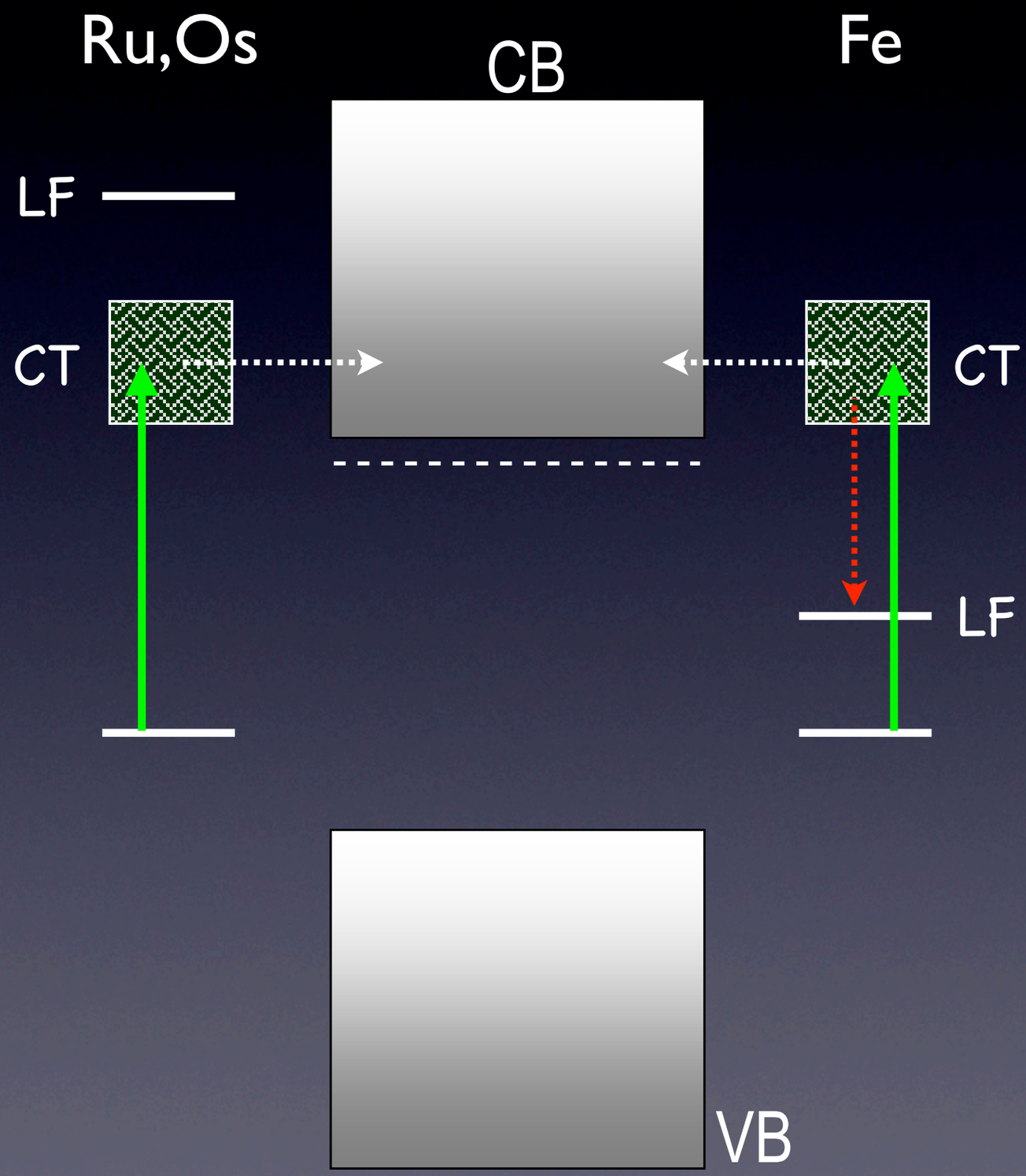

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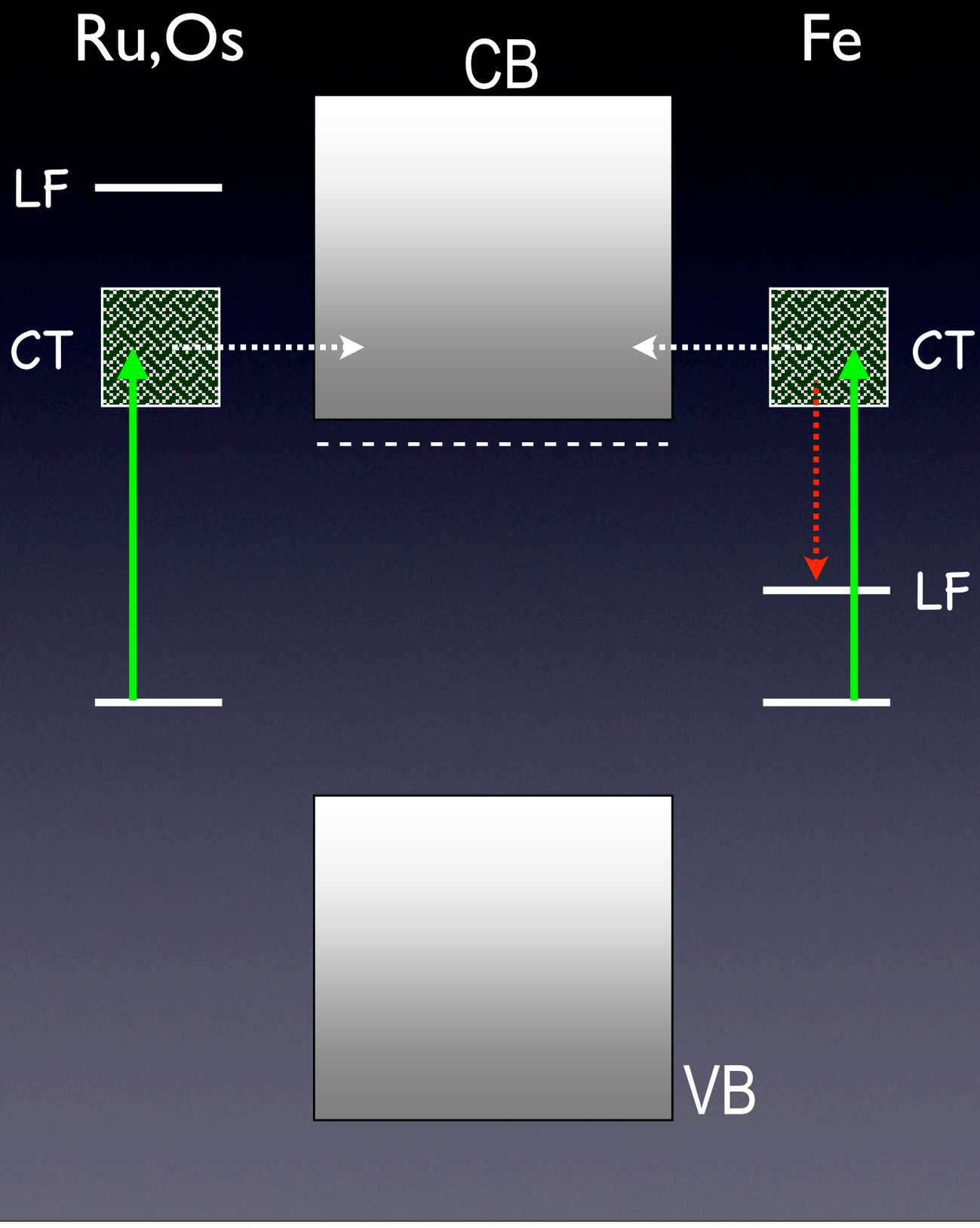

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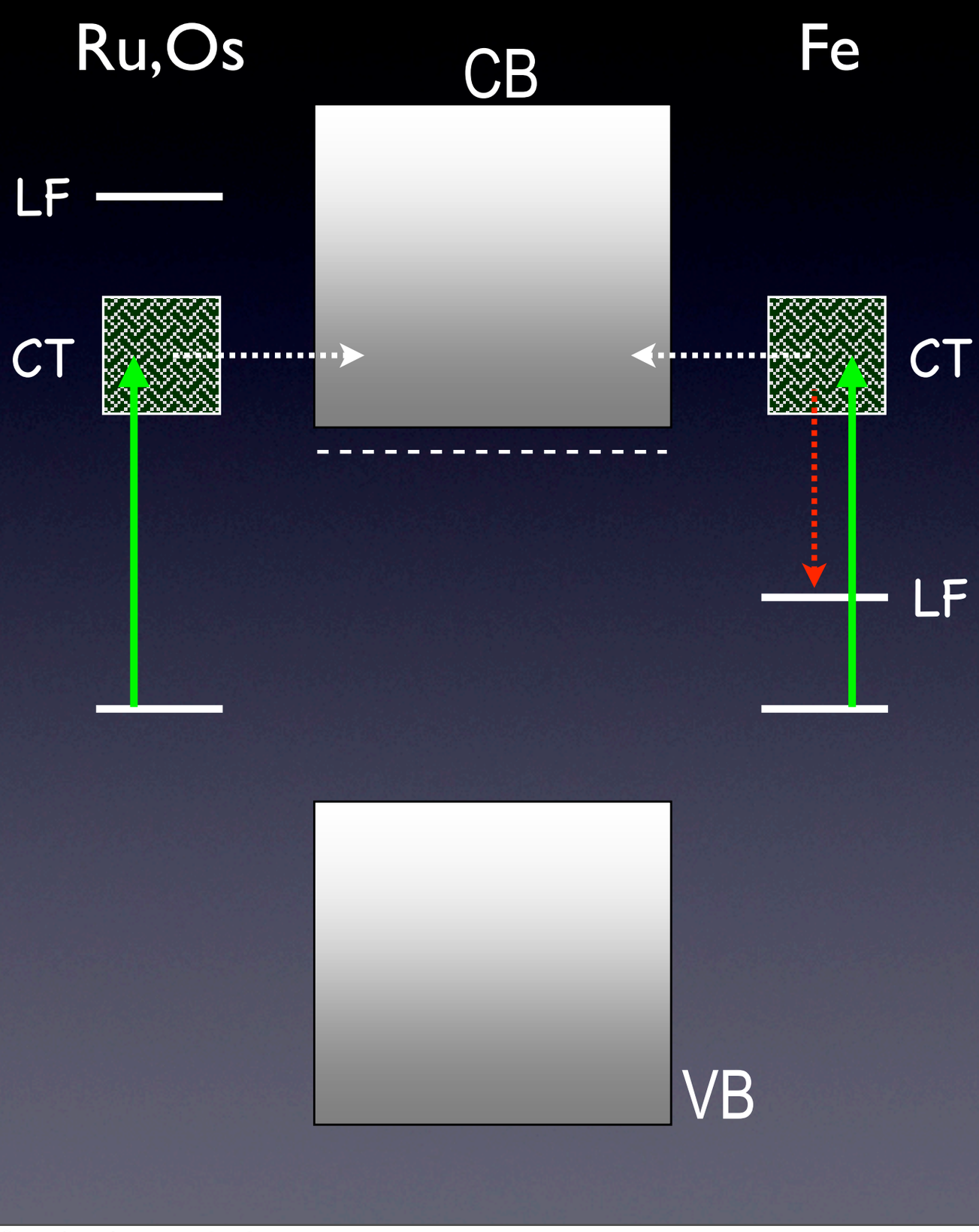


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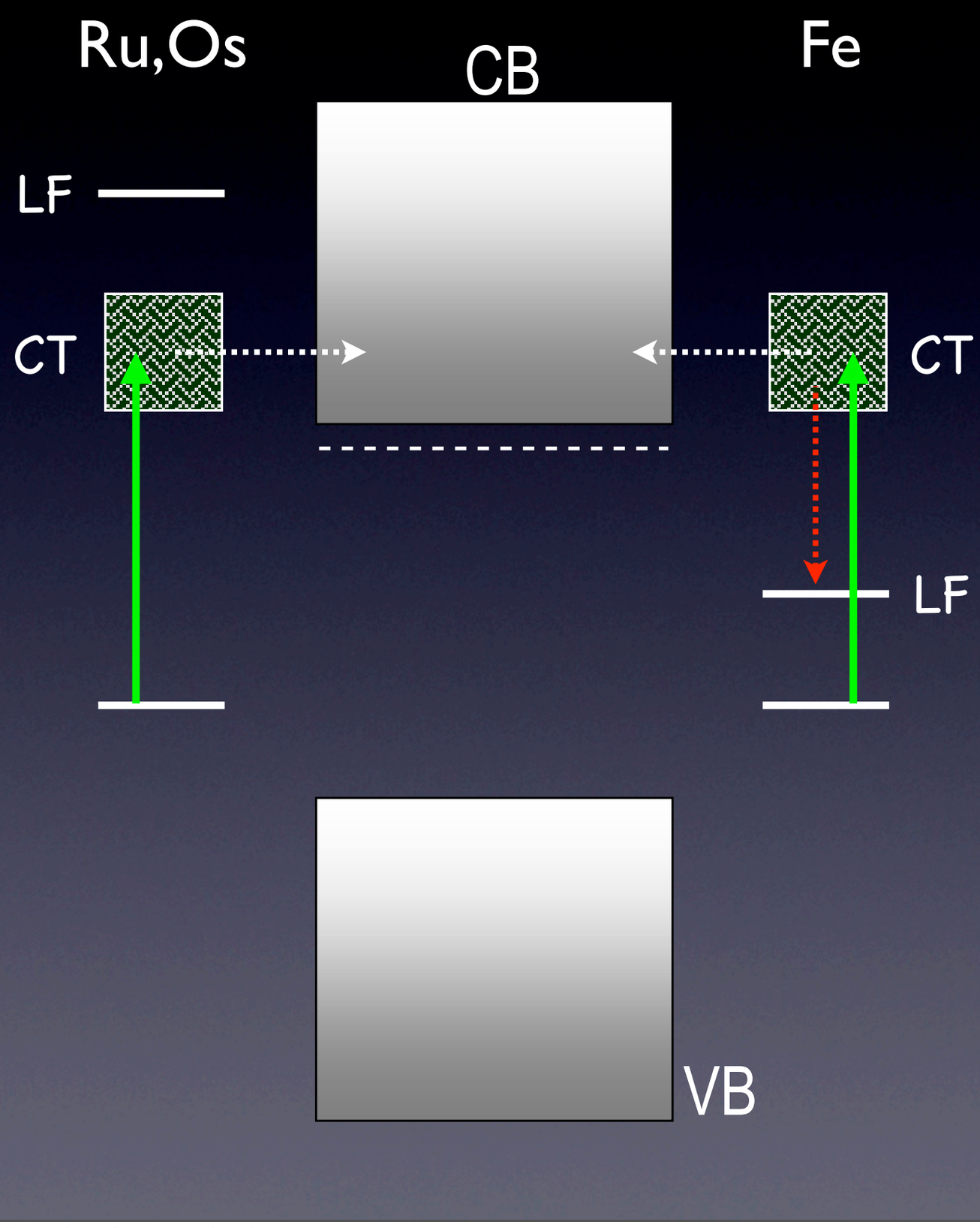


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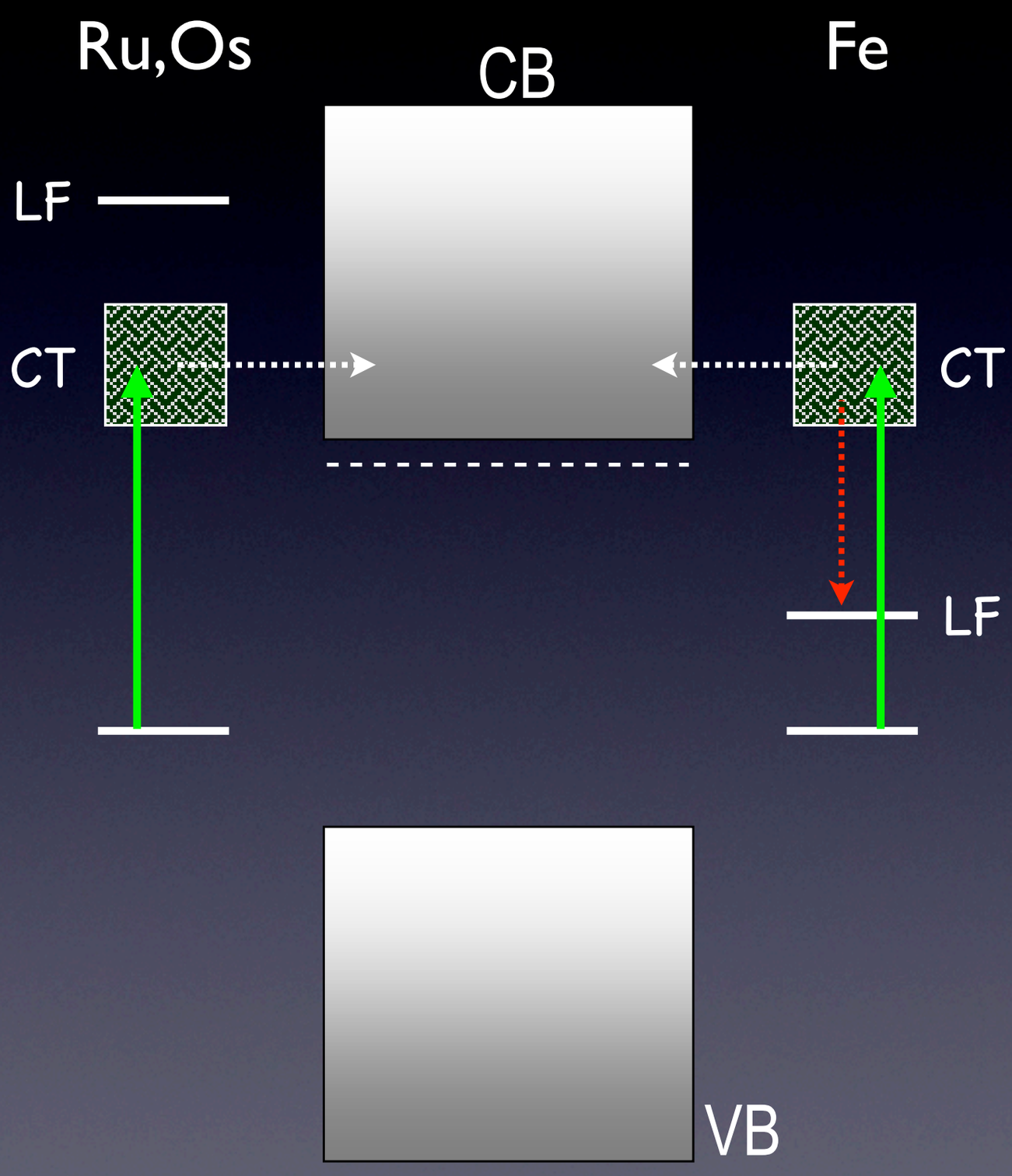


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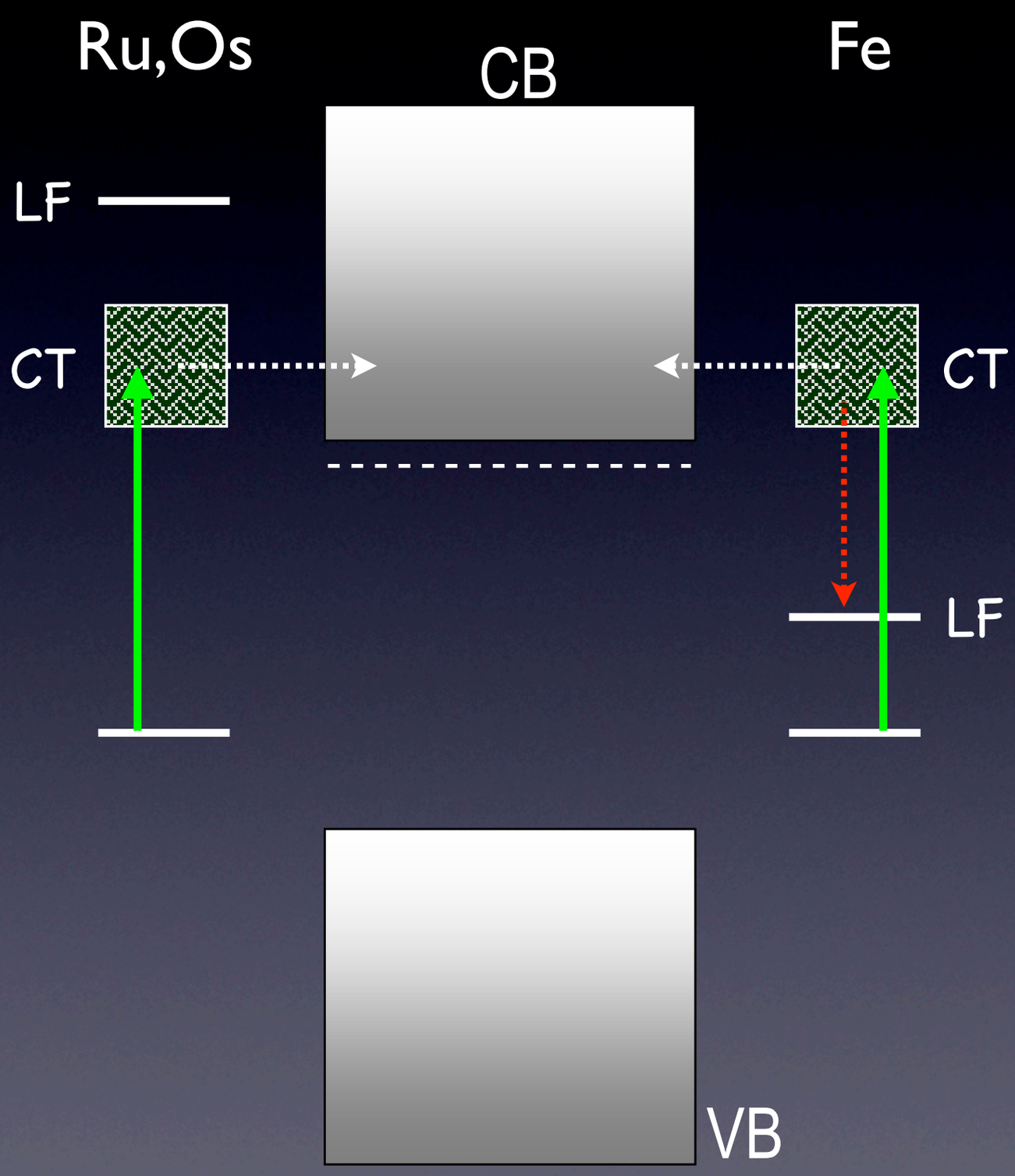


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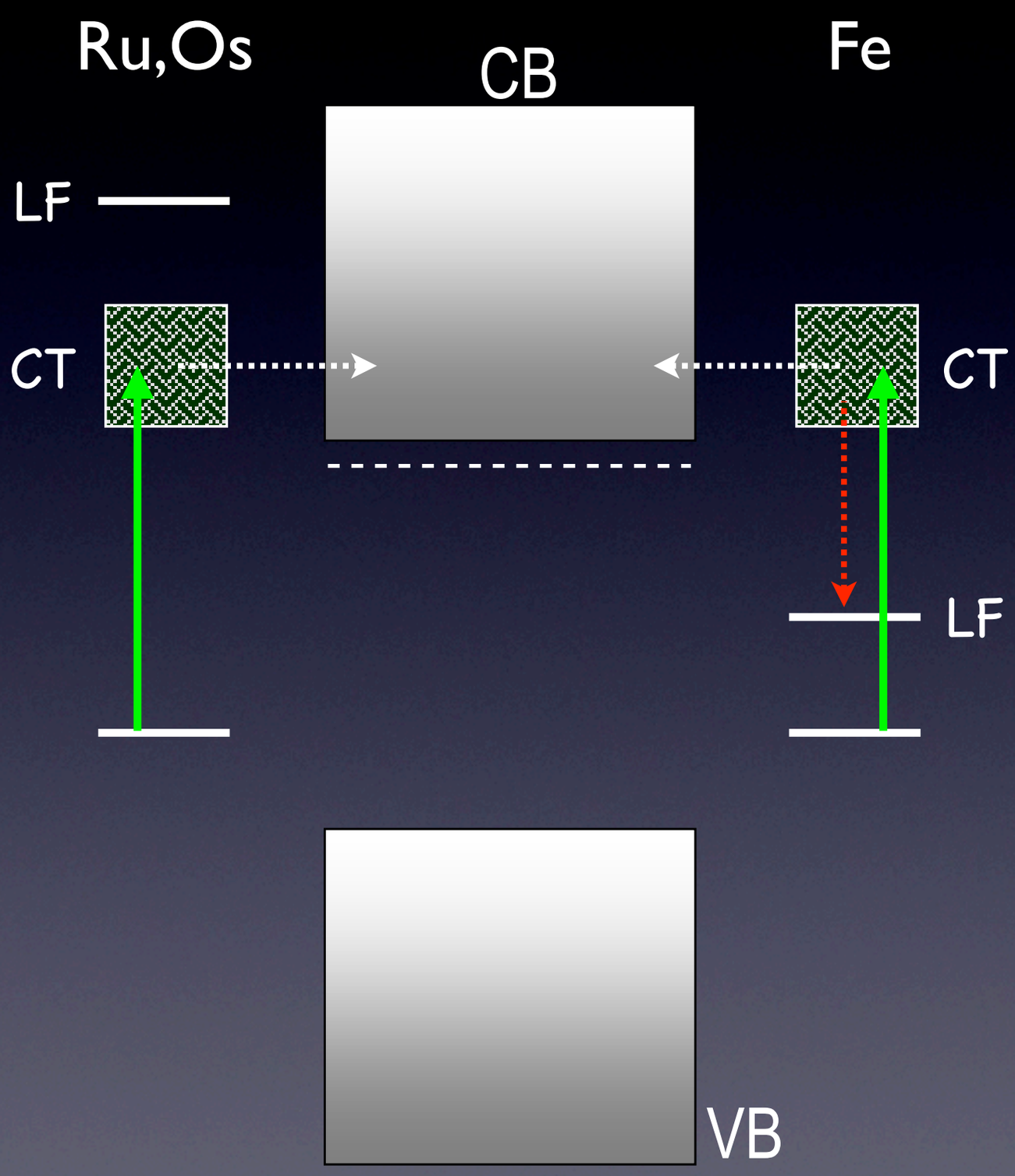


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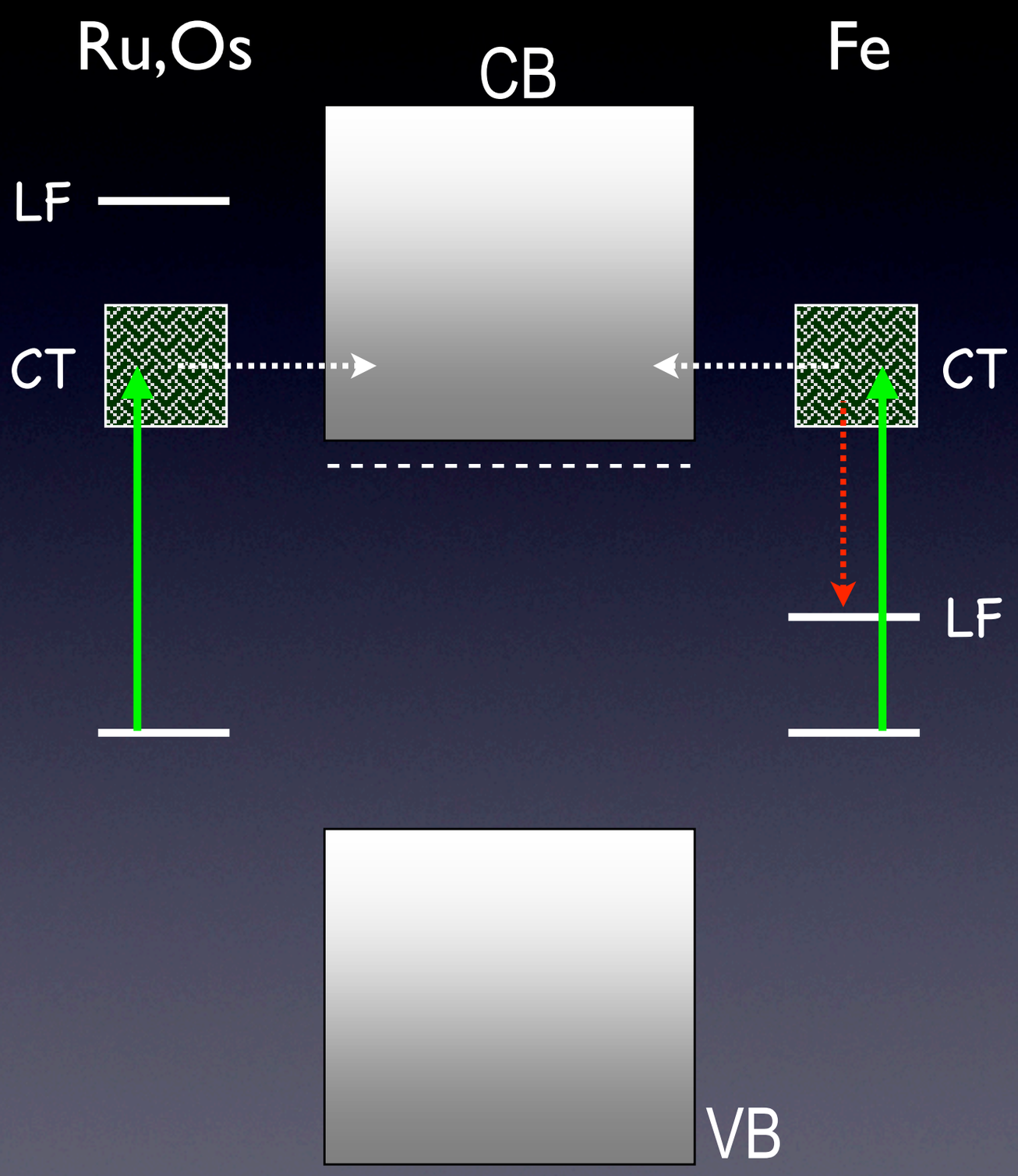


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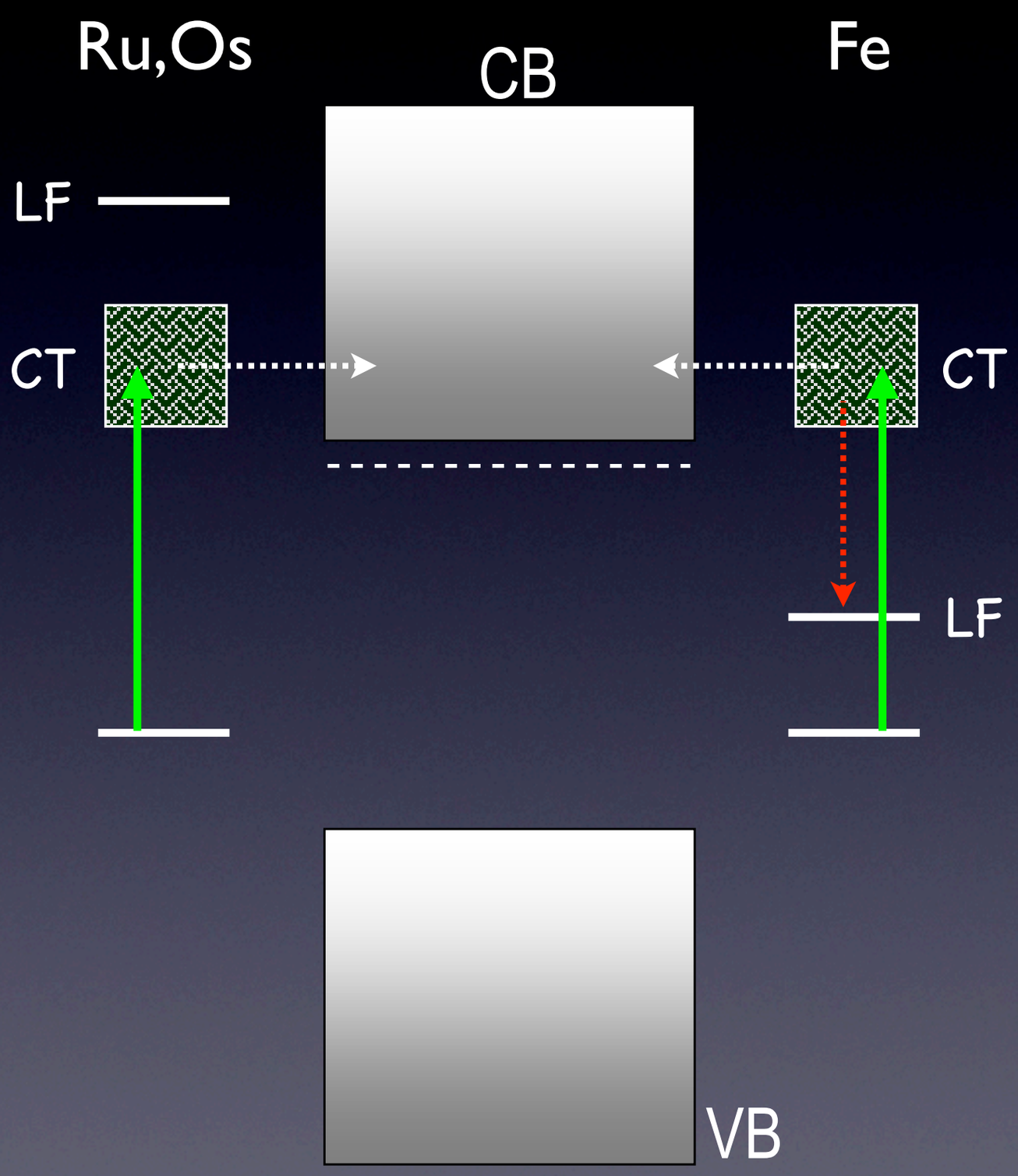


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- *paradigm shift for Fe(II) complexes?*

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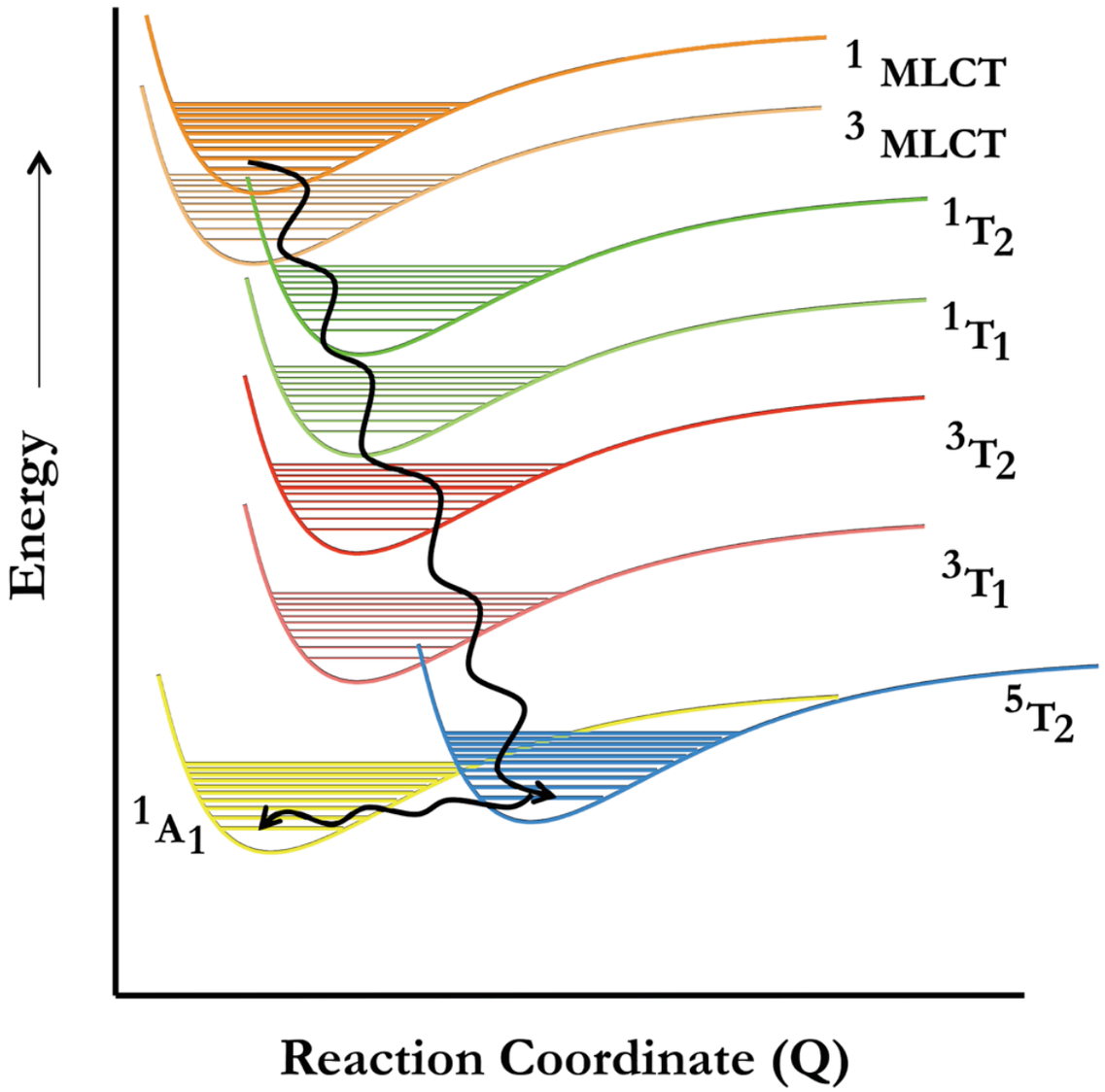


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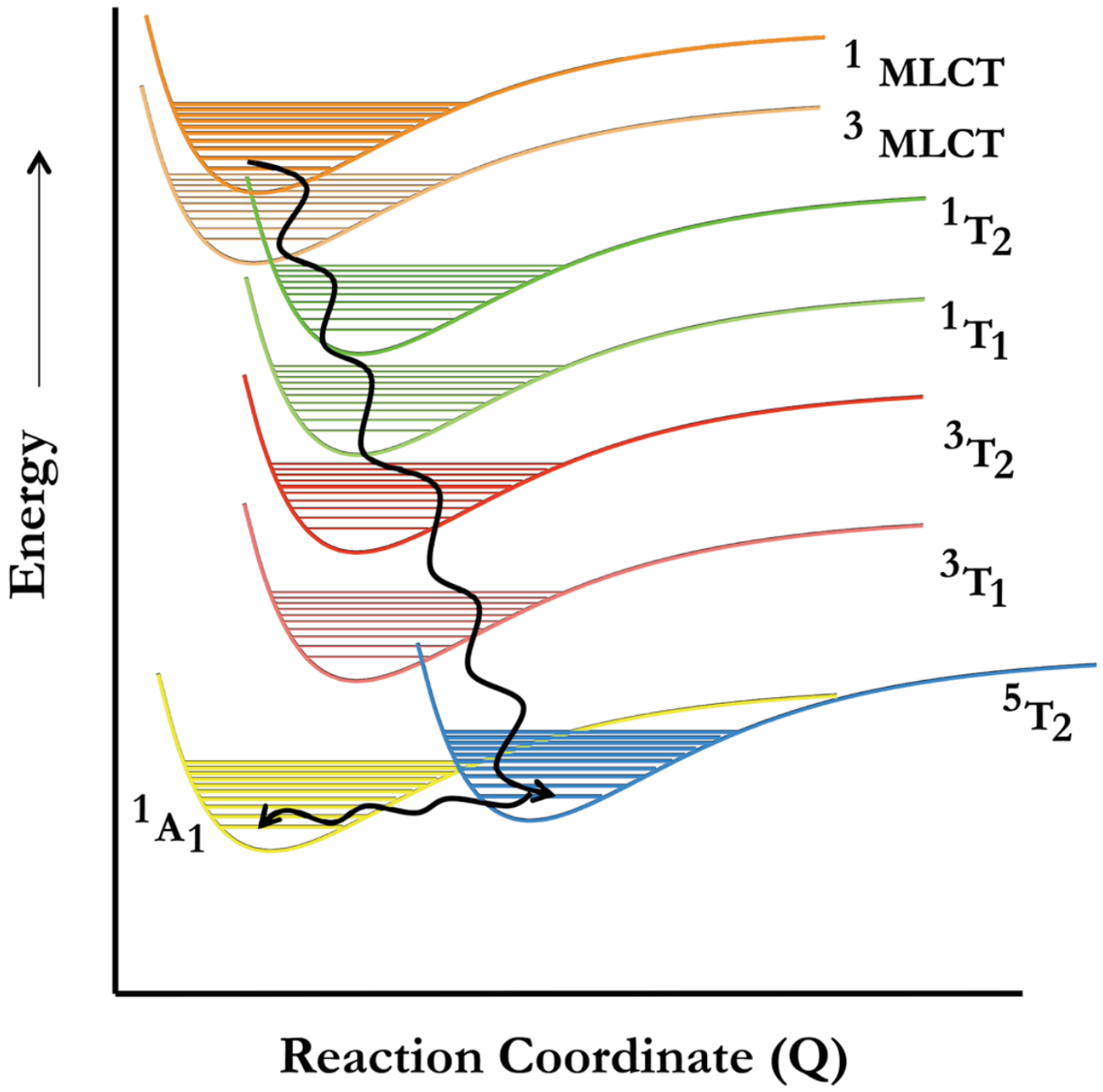


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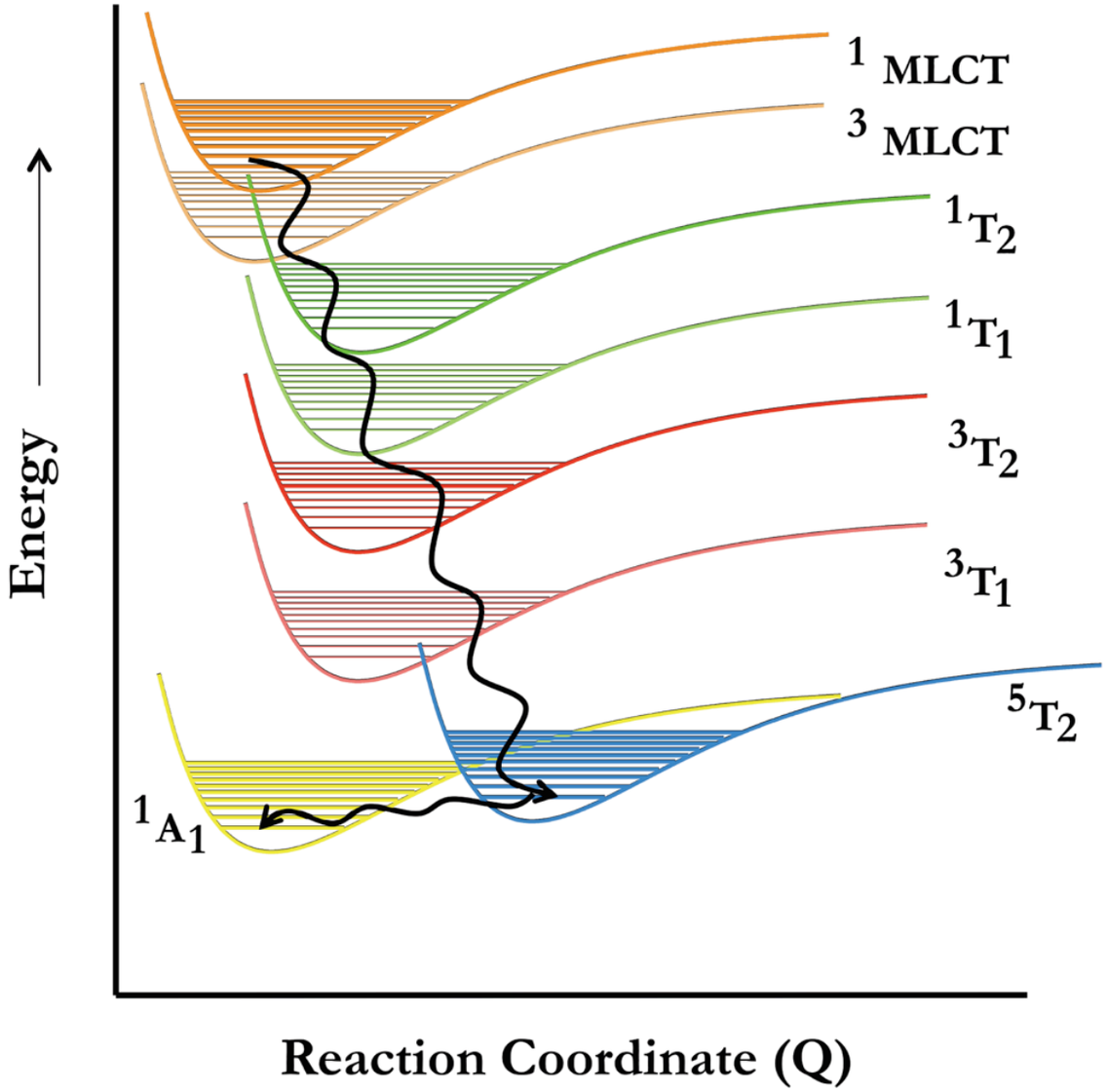


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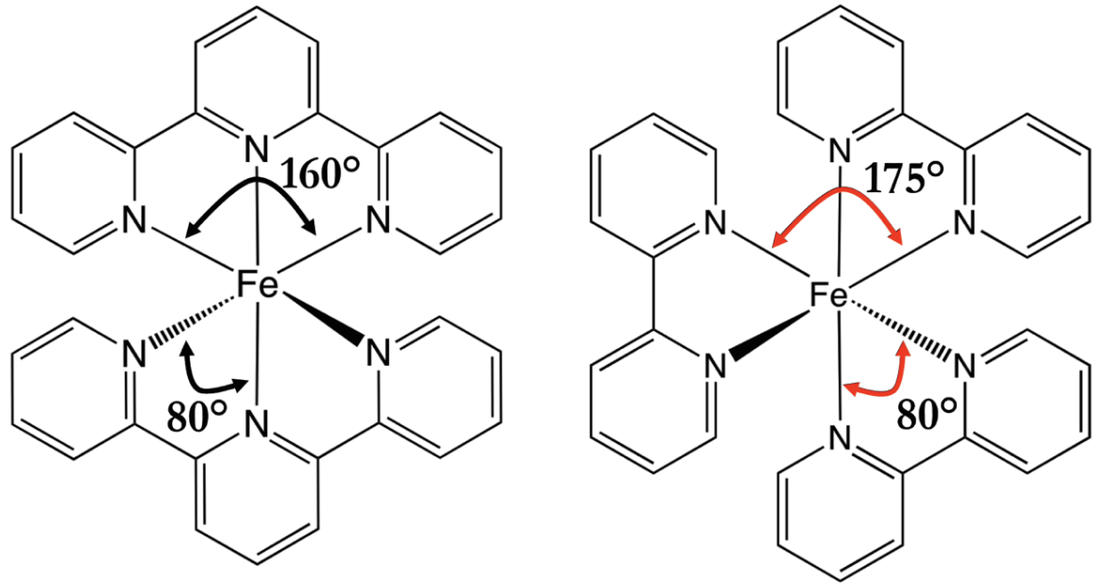


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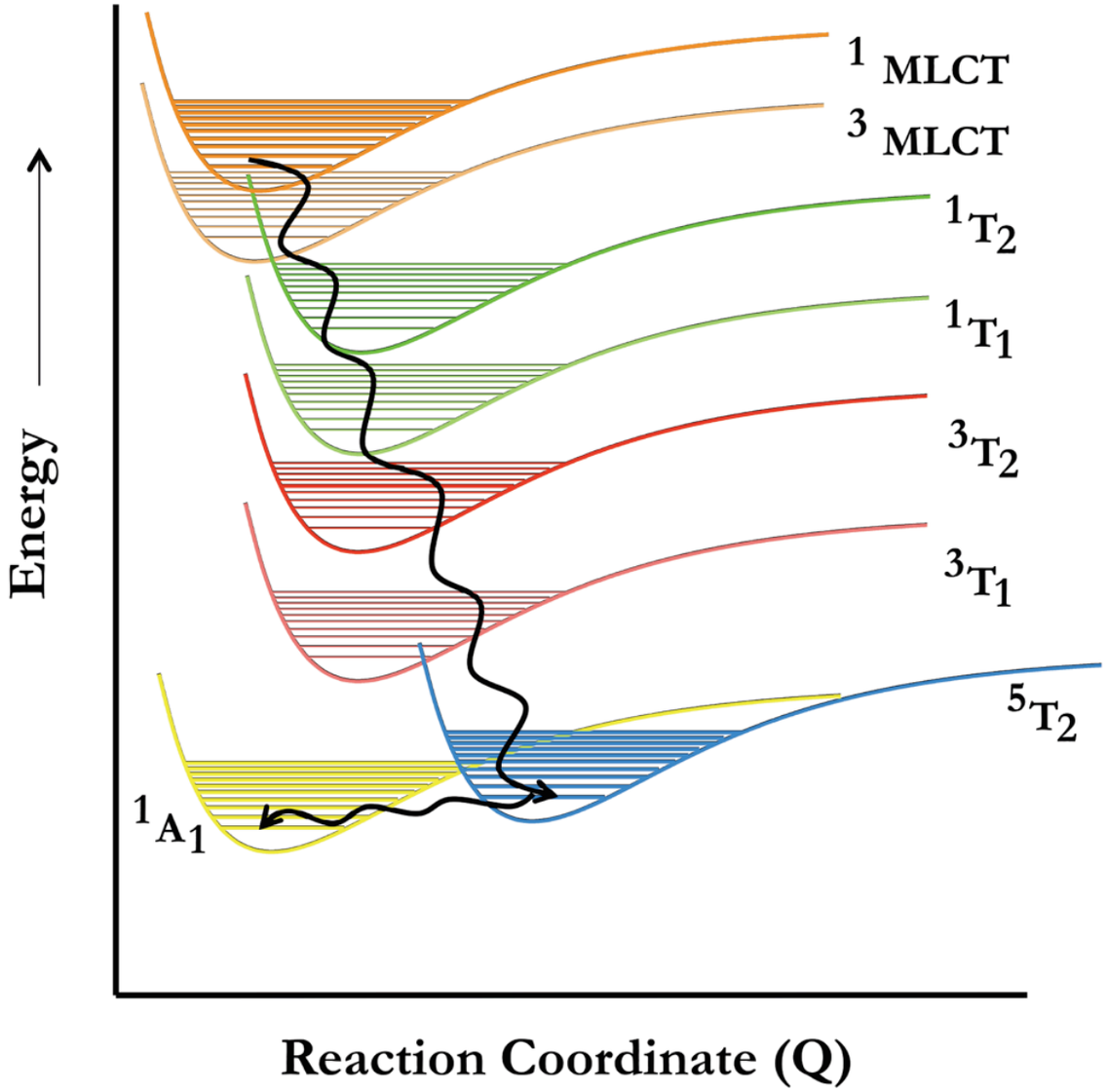


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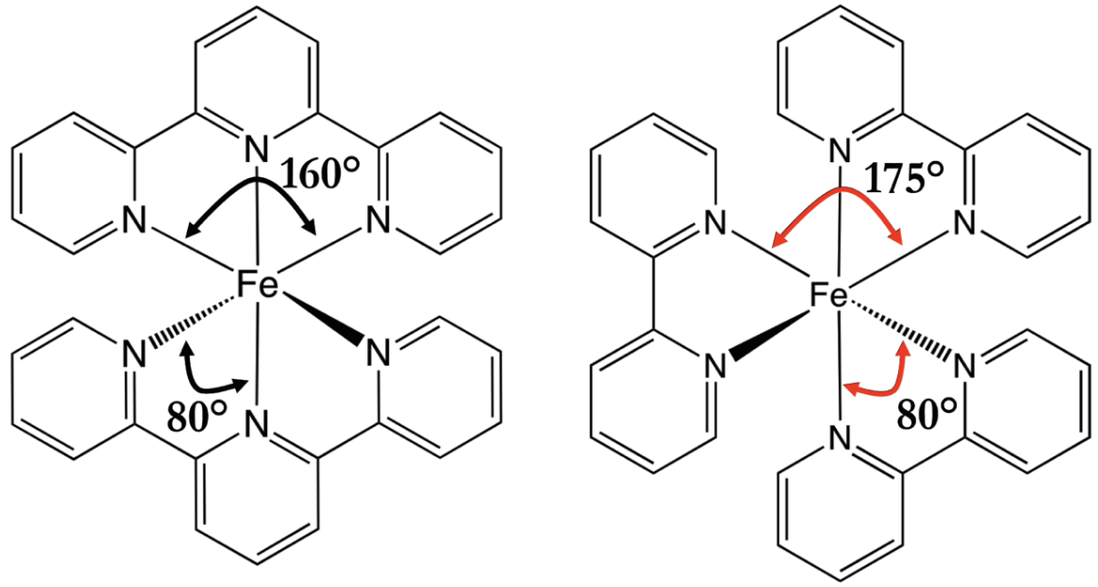


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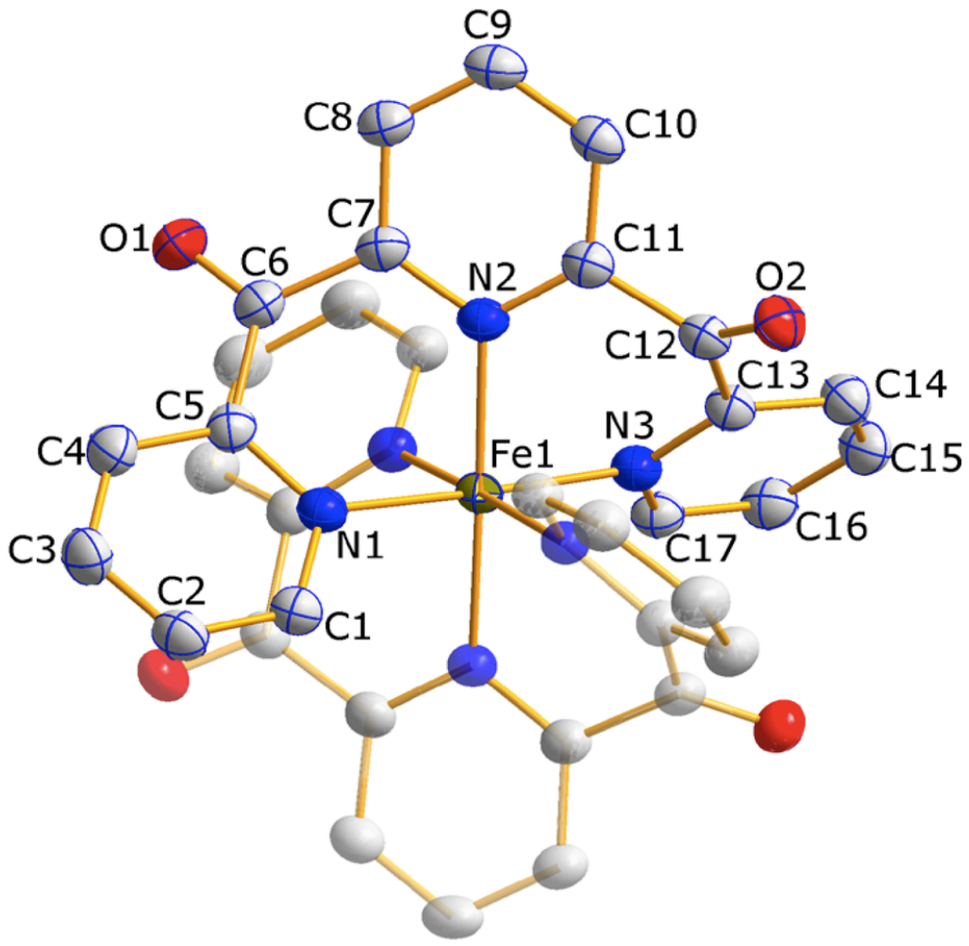
- sought to decrease the density of states by preparing a high-symmetry analog

# An $O_h$ Symmetry Fe(II) Polypyridyl Complex




*Single-crystal x-ray structure of $[Fe(dcpp)_2](PF_6)_2$. The bond distances and angles in the primary coordination sphere indicate that the molecule possesses nearly perfect $O_h$ symmetry.*

Jamula, L; Brown, A.; Guo, D.; McCusker, J.K., submitted for publication.

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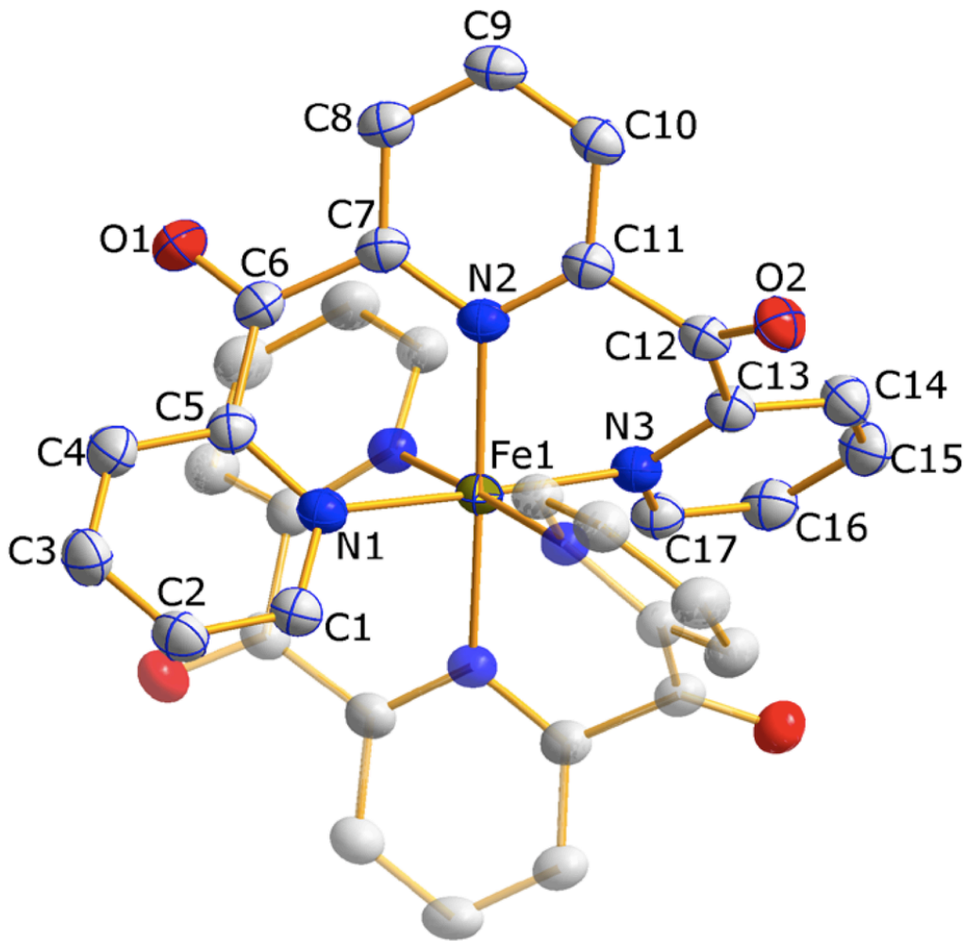


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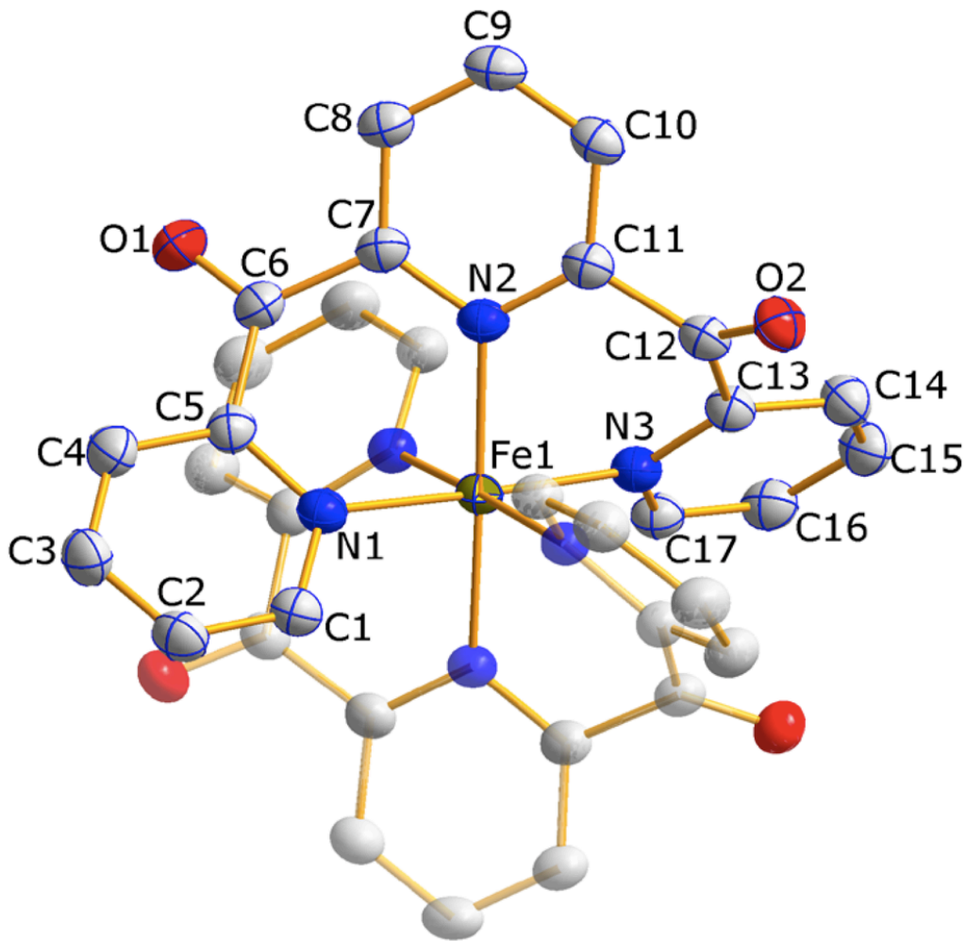


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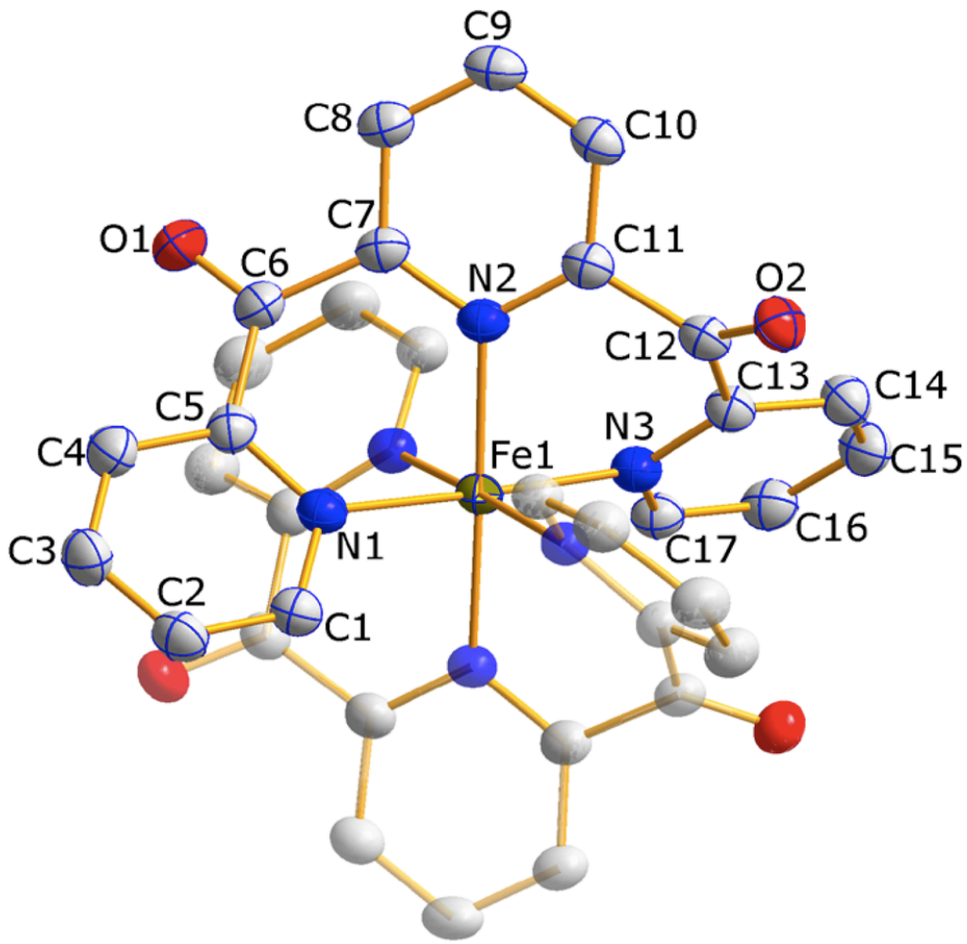


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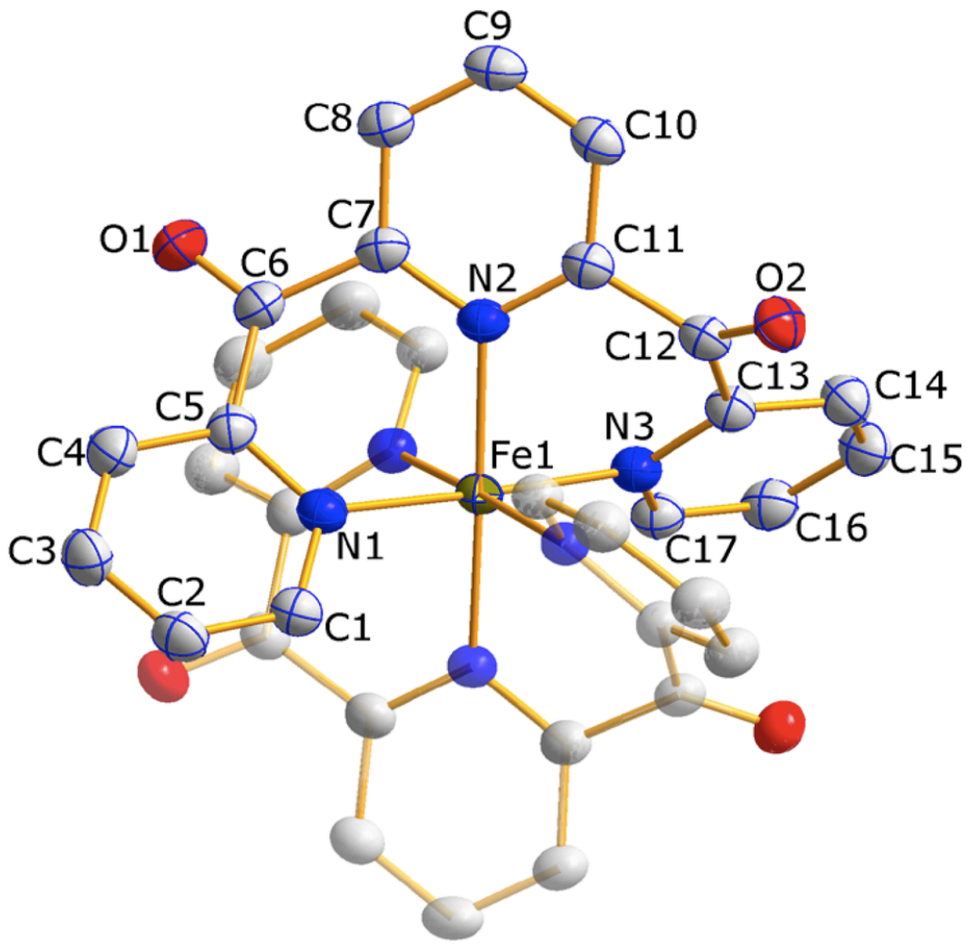


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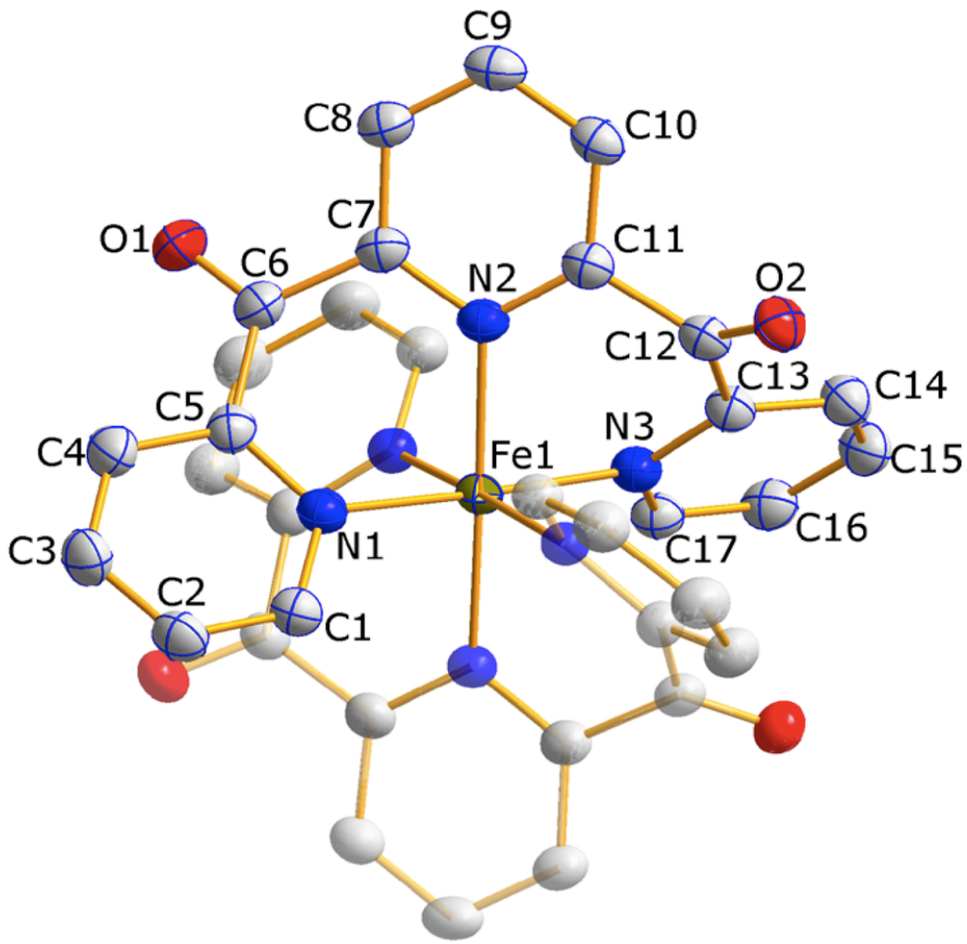


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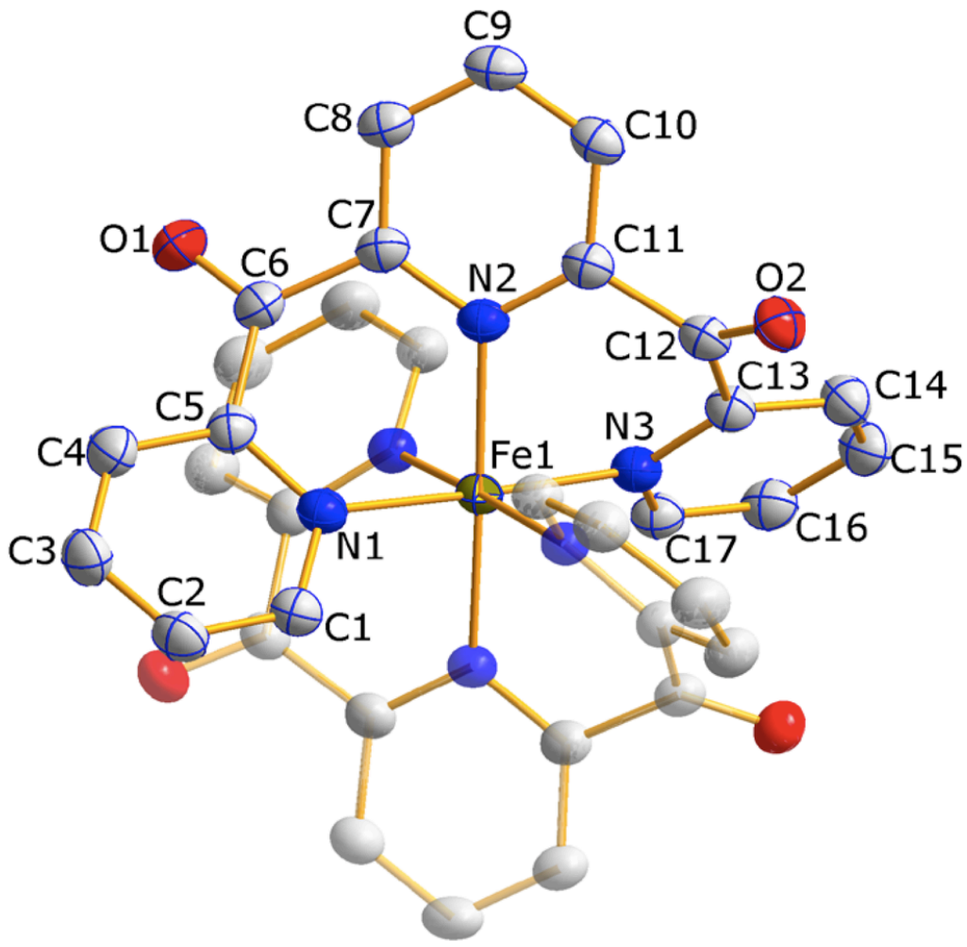


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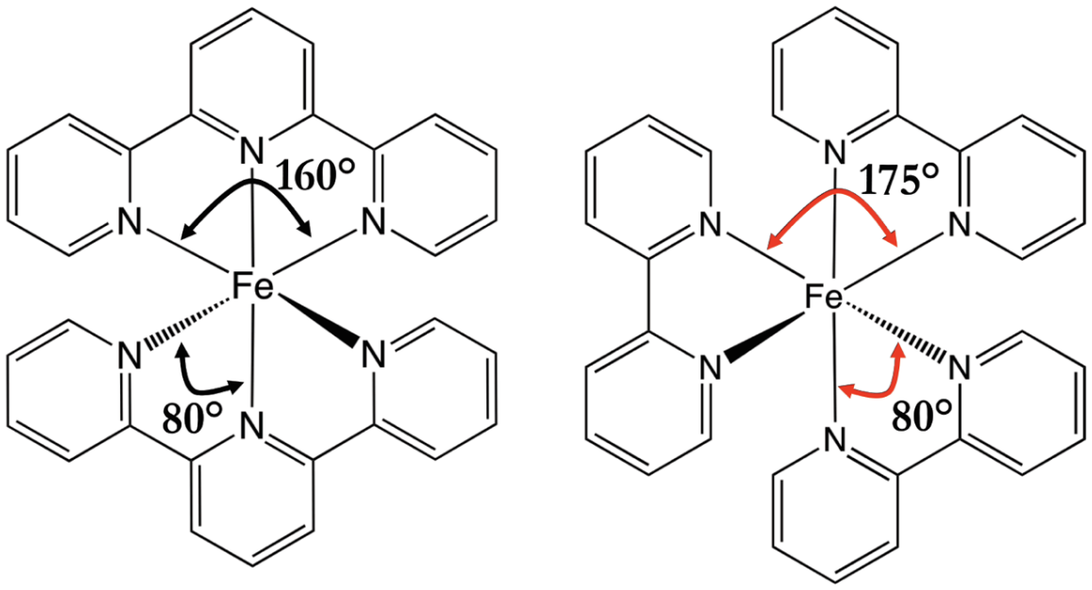


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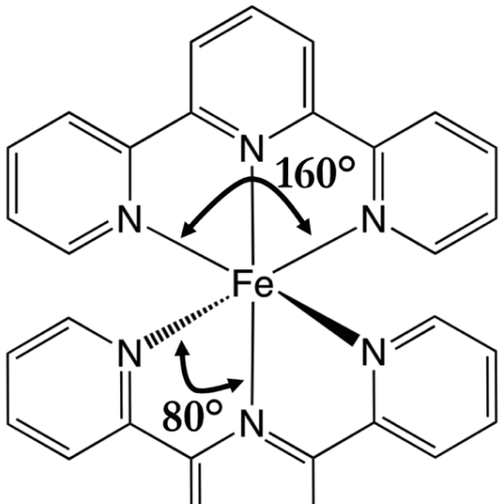


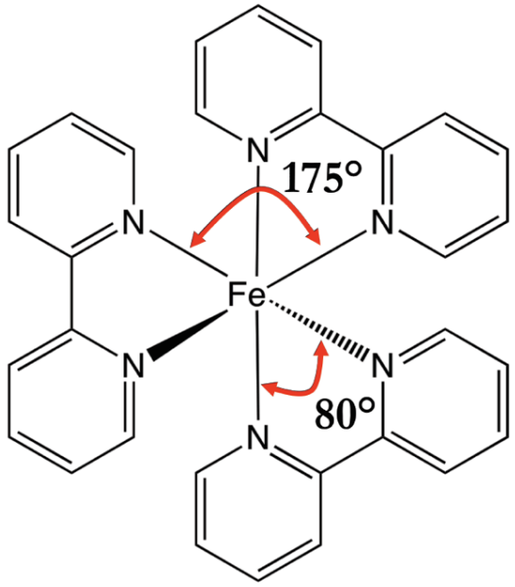


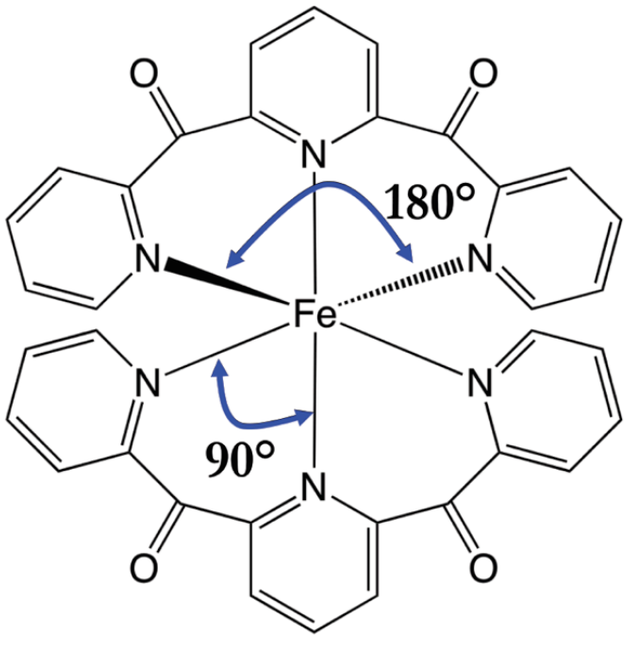


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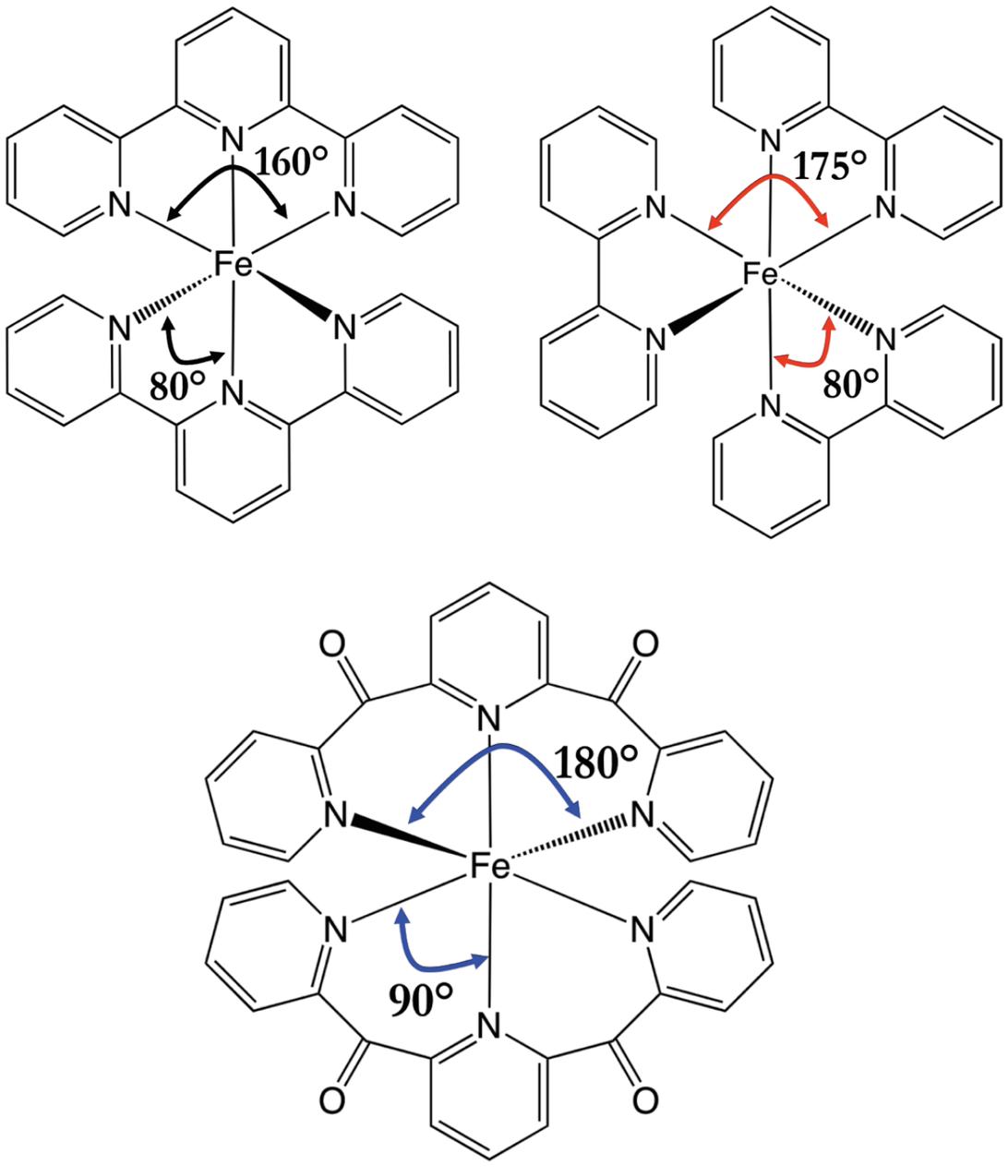


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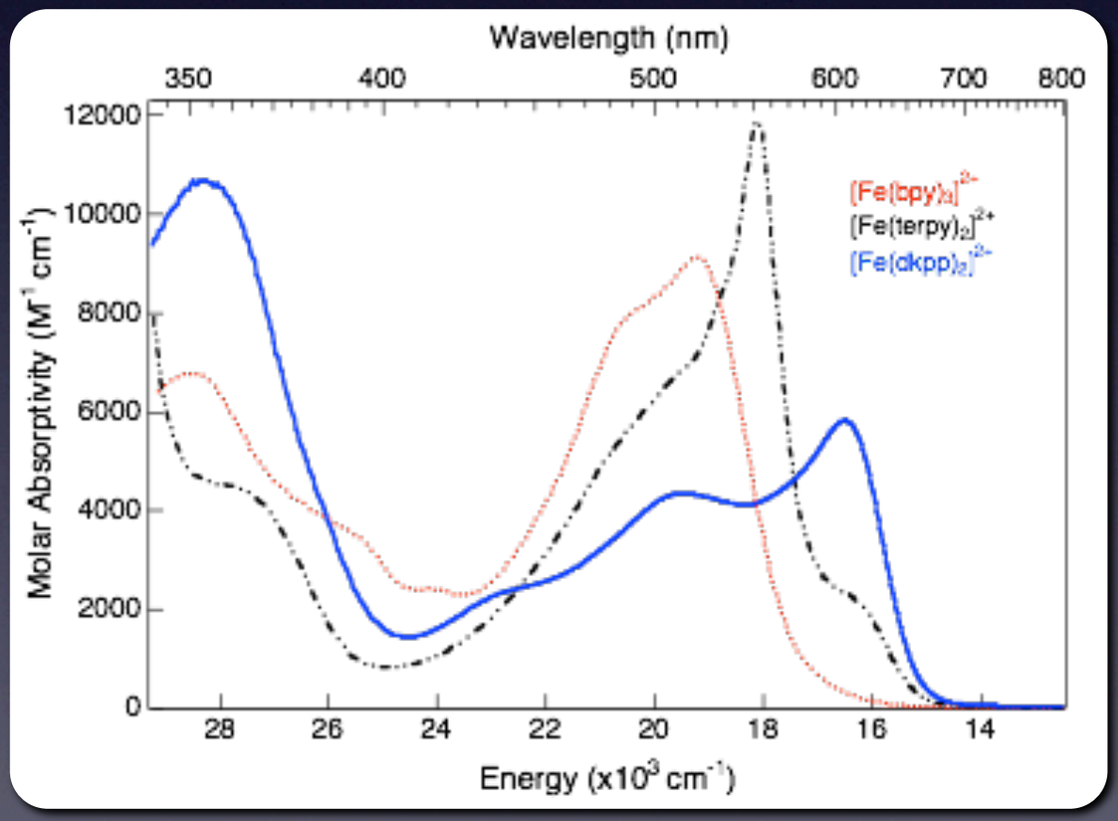


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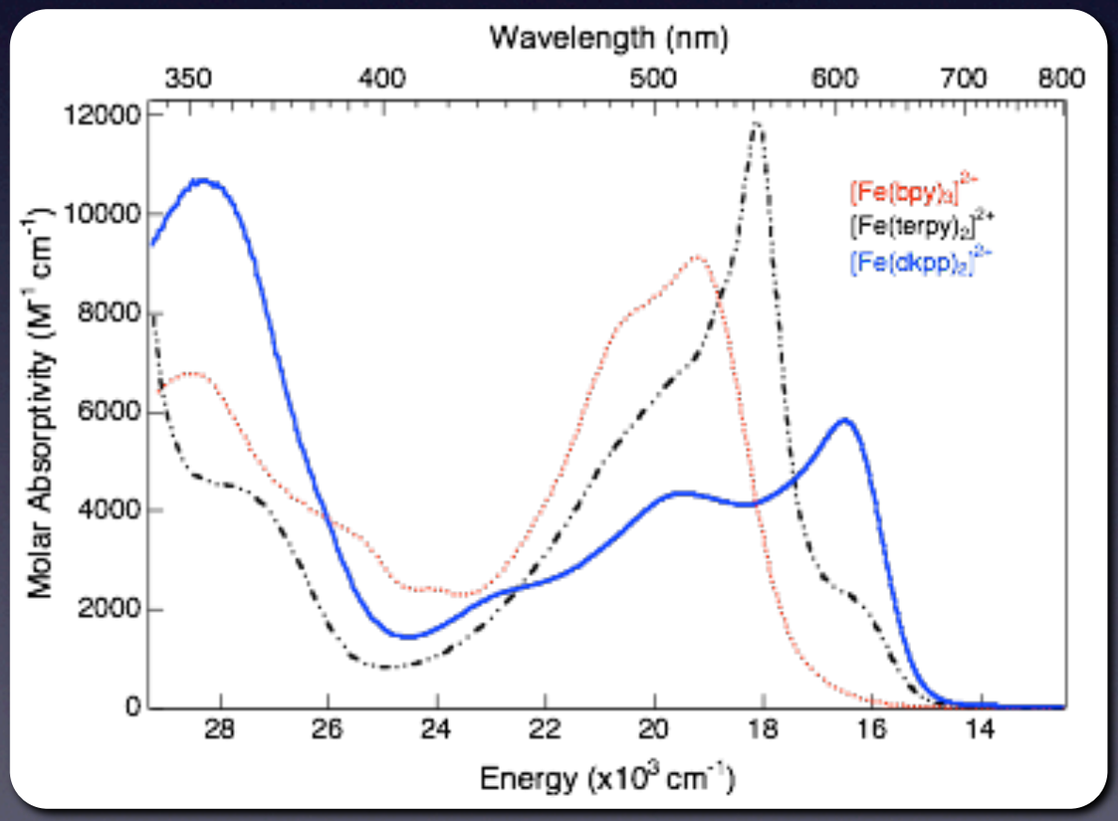


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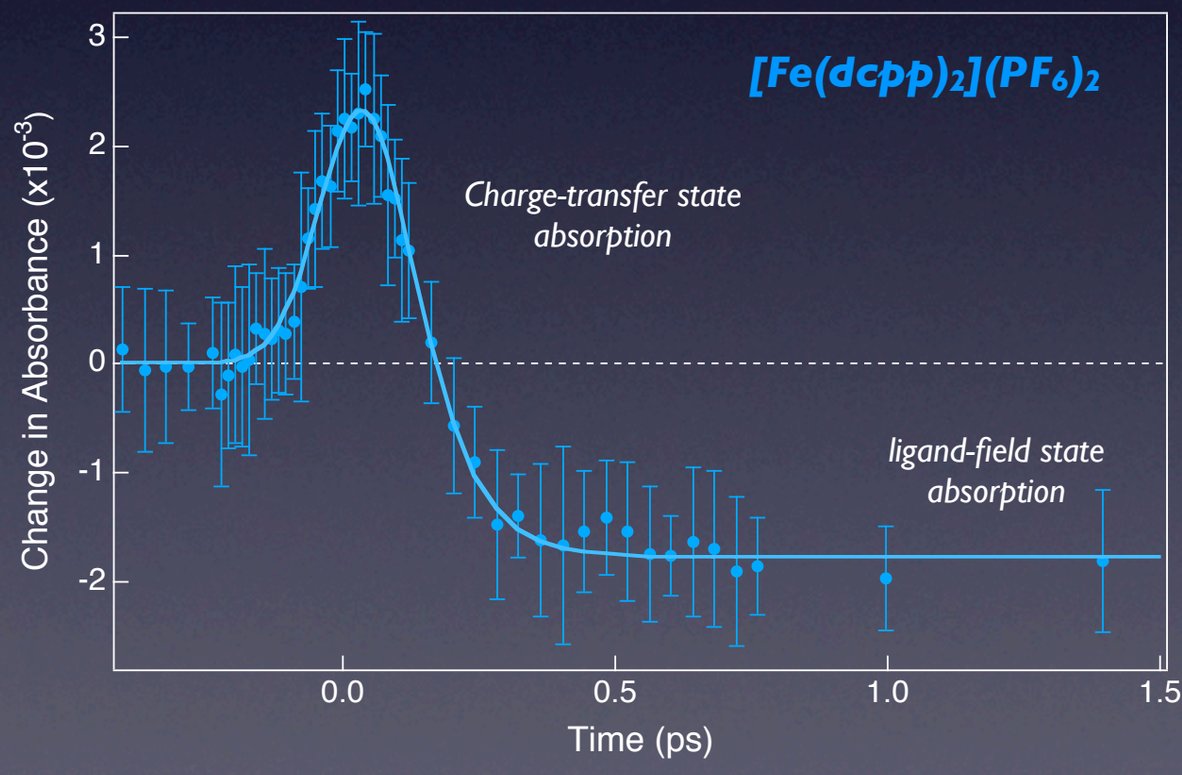

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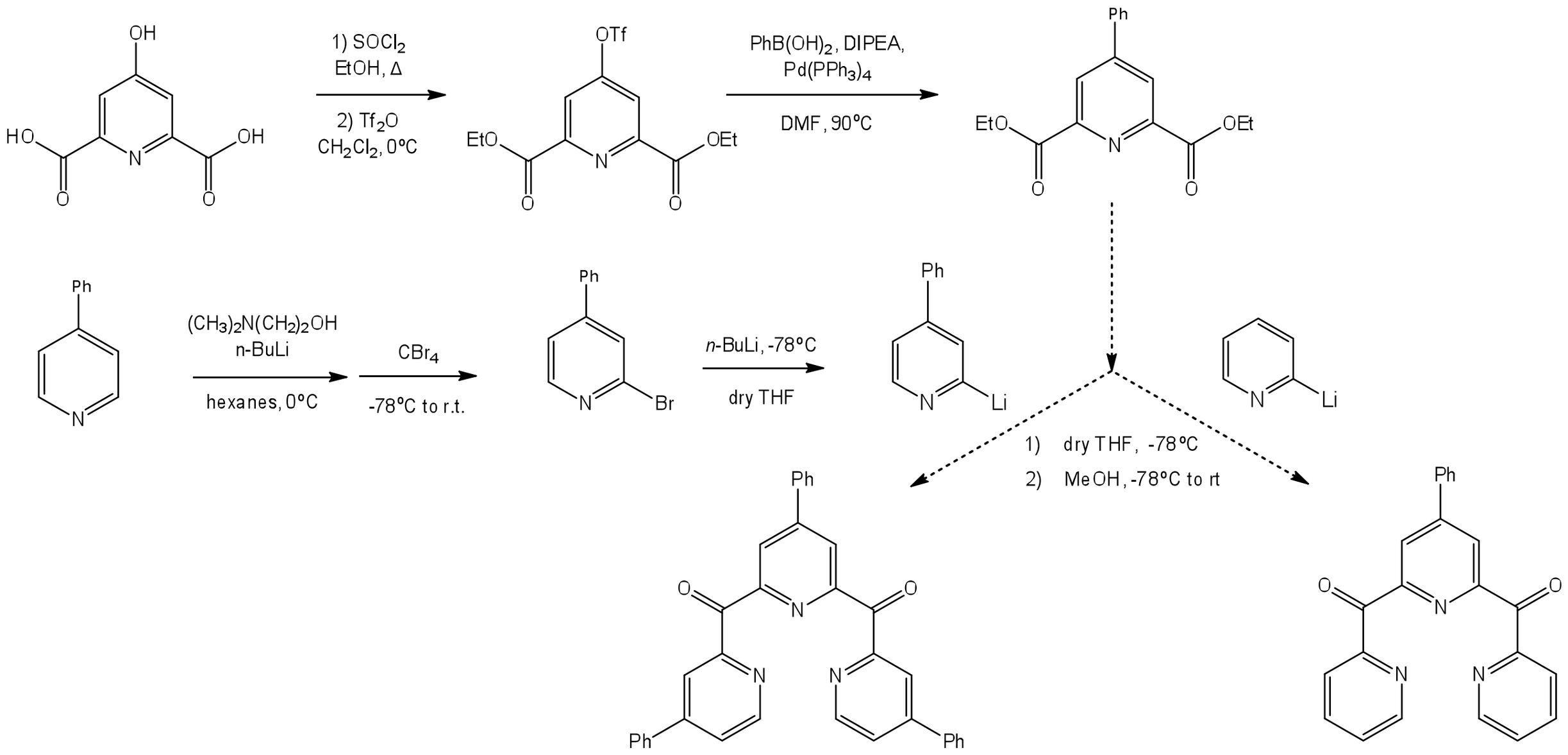

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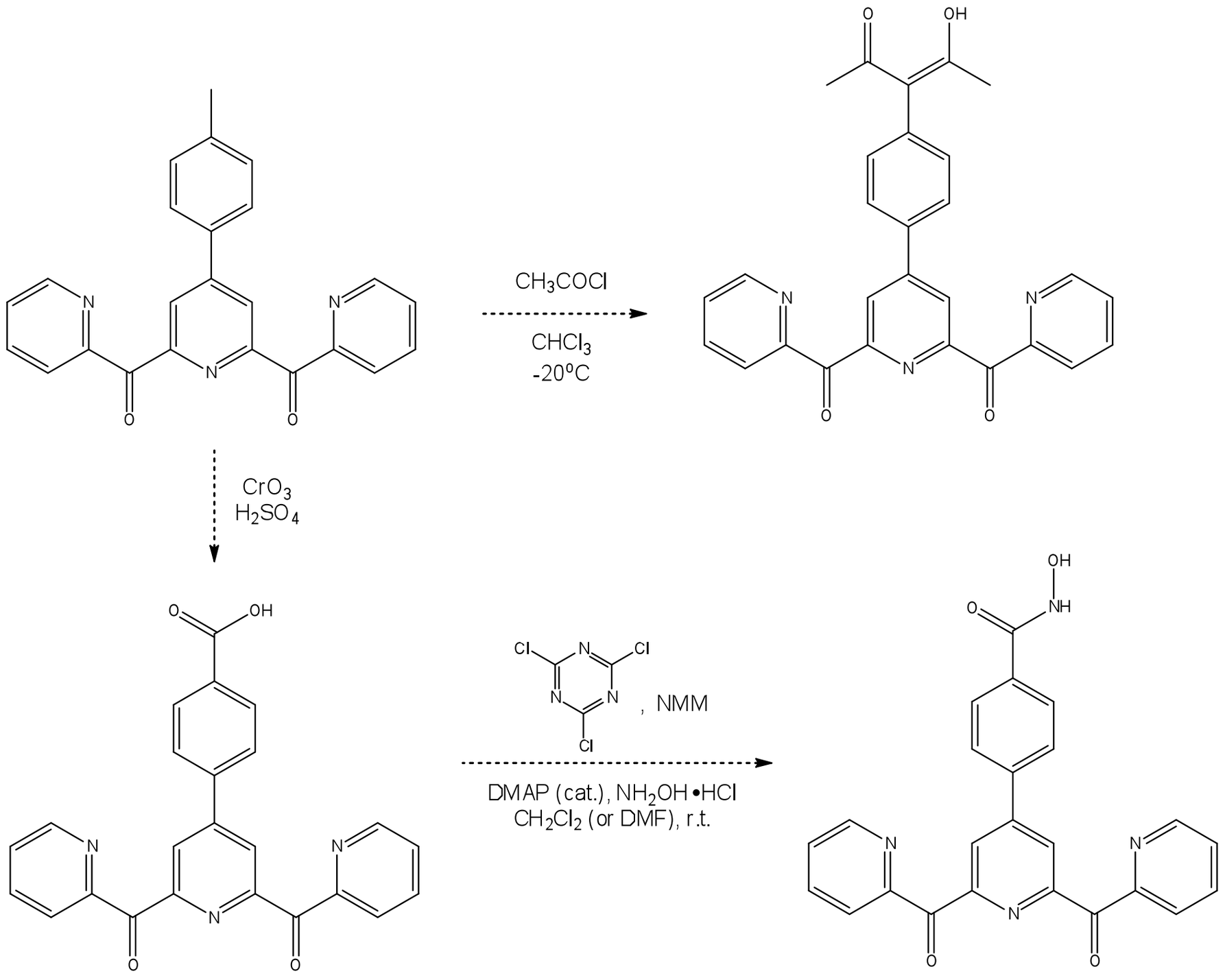
- extension of π system to stabilize the MLCT state
- functionalization to allow for binding to surface of semiconductor



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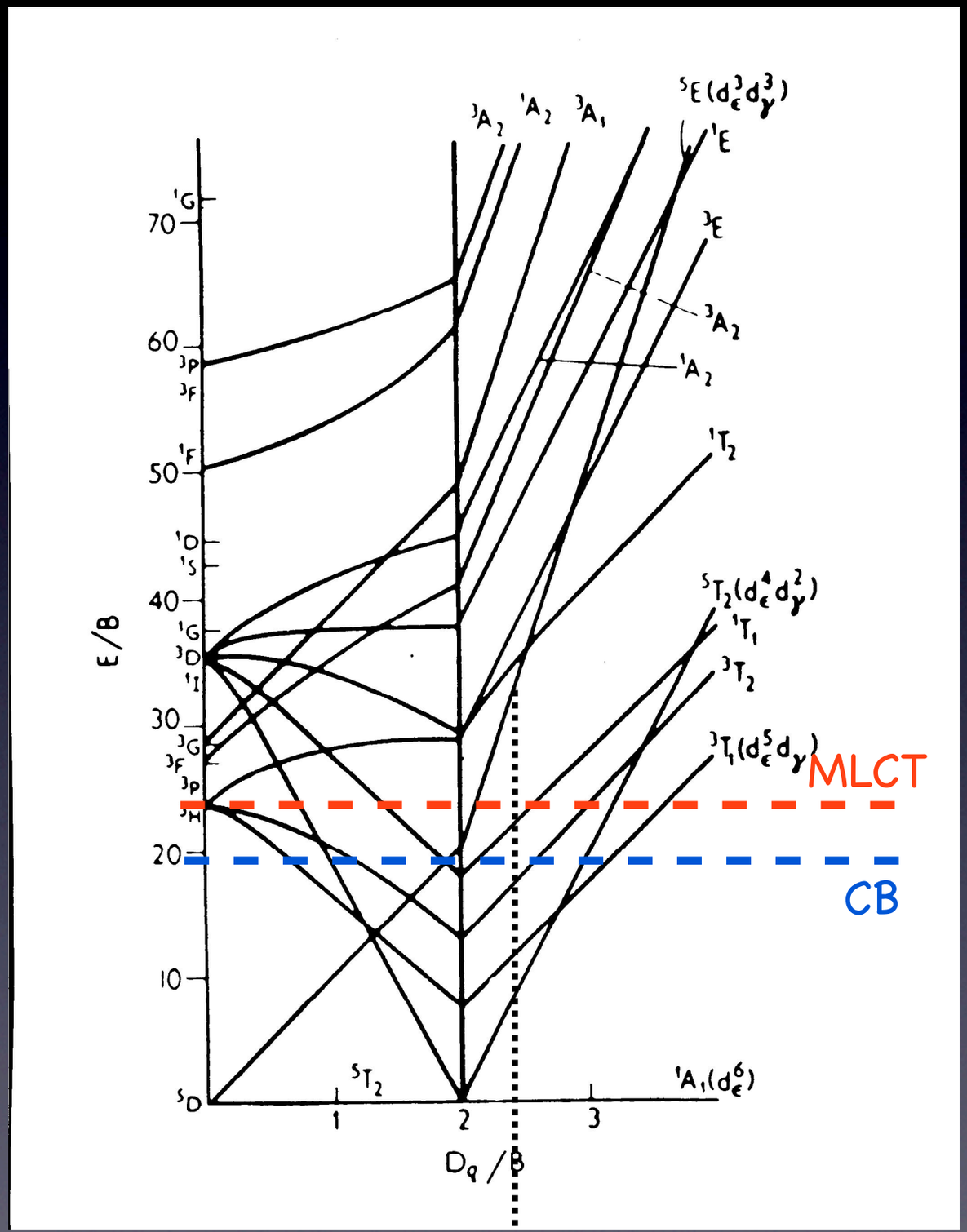

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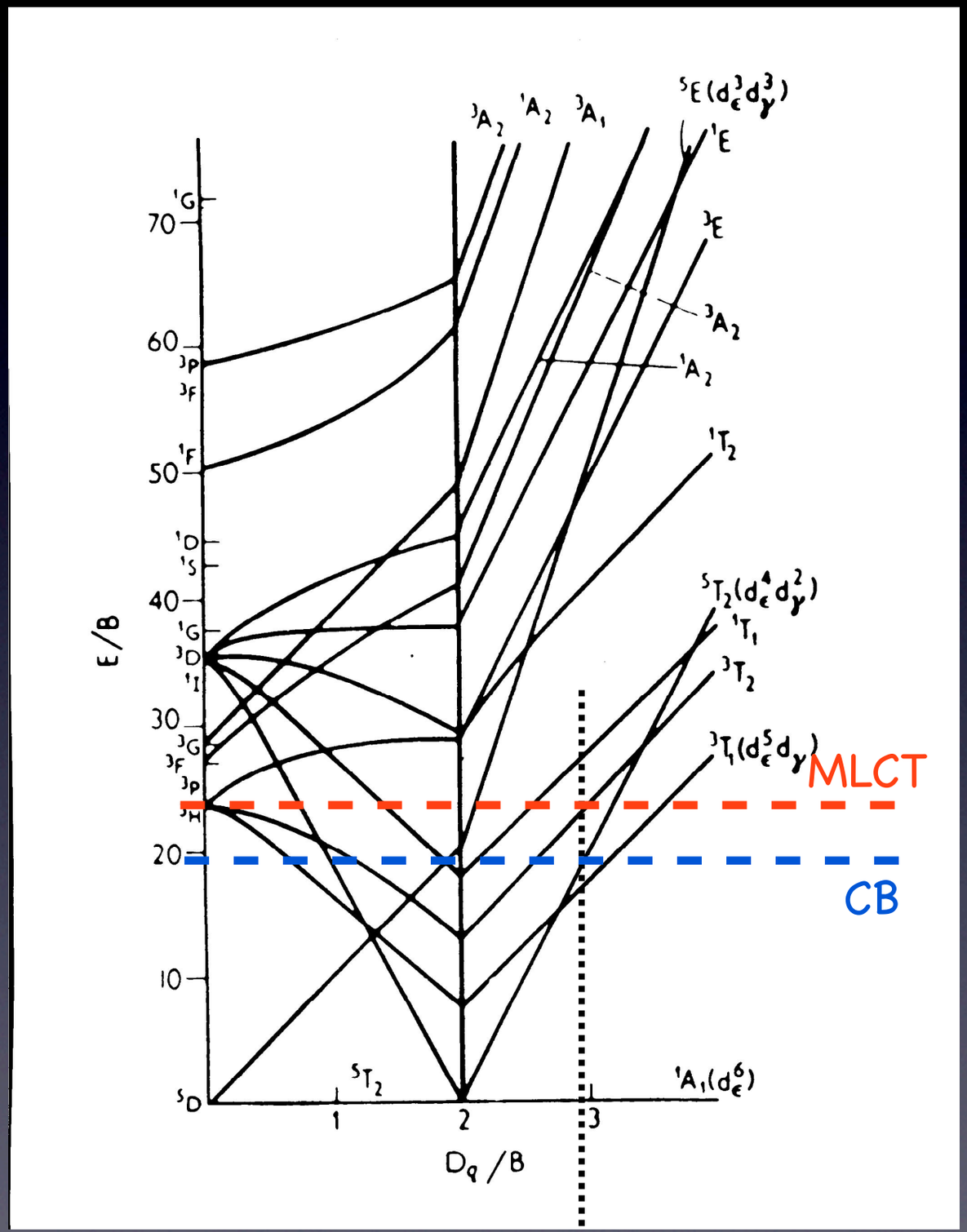

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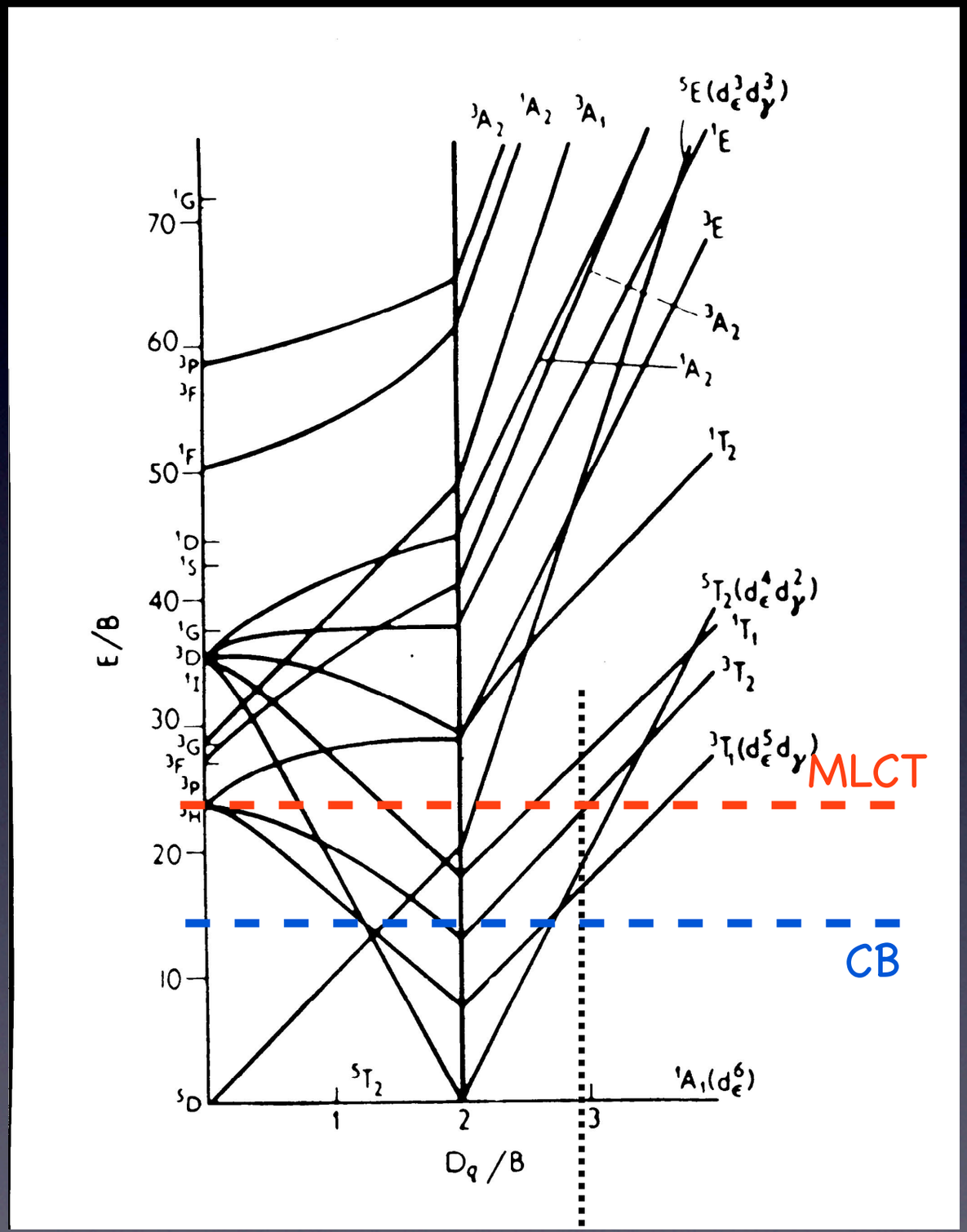

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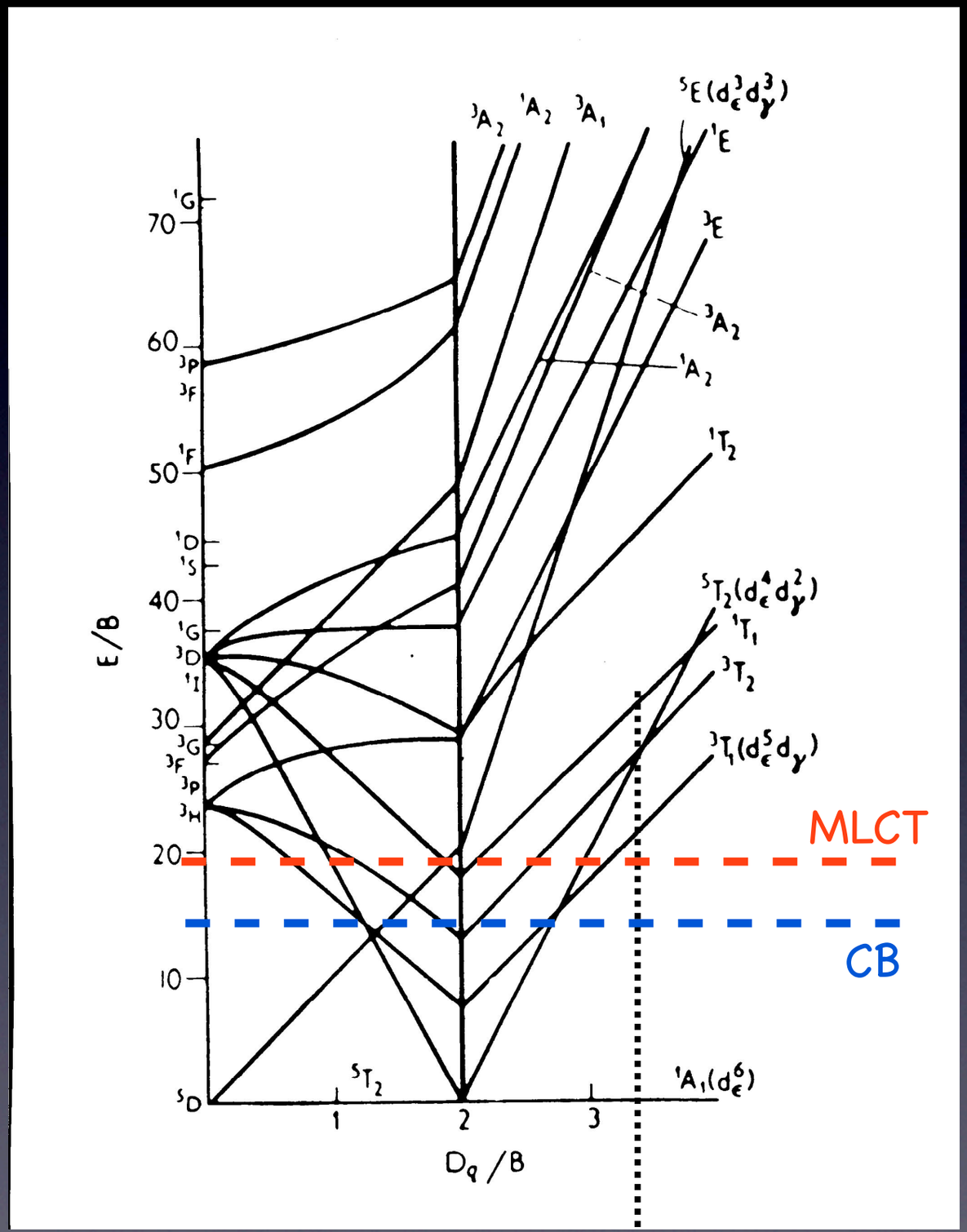

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