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Phase diagrams of 2D Ashkin-Teller model within the effect of crystal field and quantum transverse field

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Highlights:

- We have analyzed the behavior of the 2D Ashkin-Teller model using mean field theory.
- Three new phase diagrams are obtained by varying the crystal field values.
- Three others new phase diagrams with different quantum transverse field values.
- The multicritical behaviors are studied as a function of four-spin interaction coefficient (J_4 /J_1).

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