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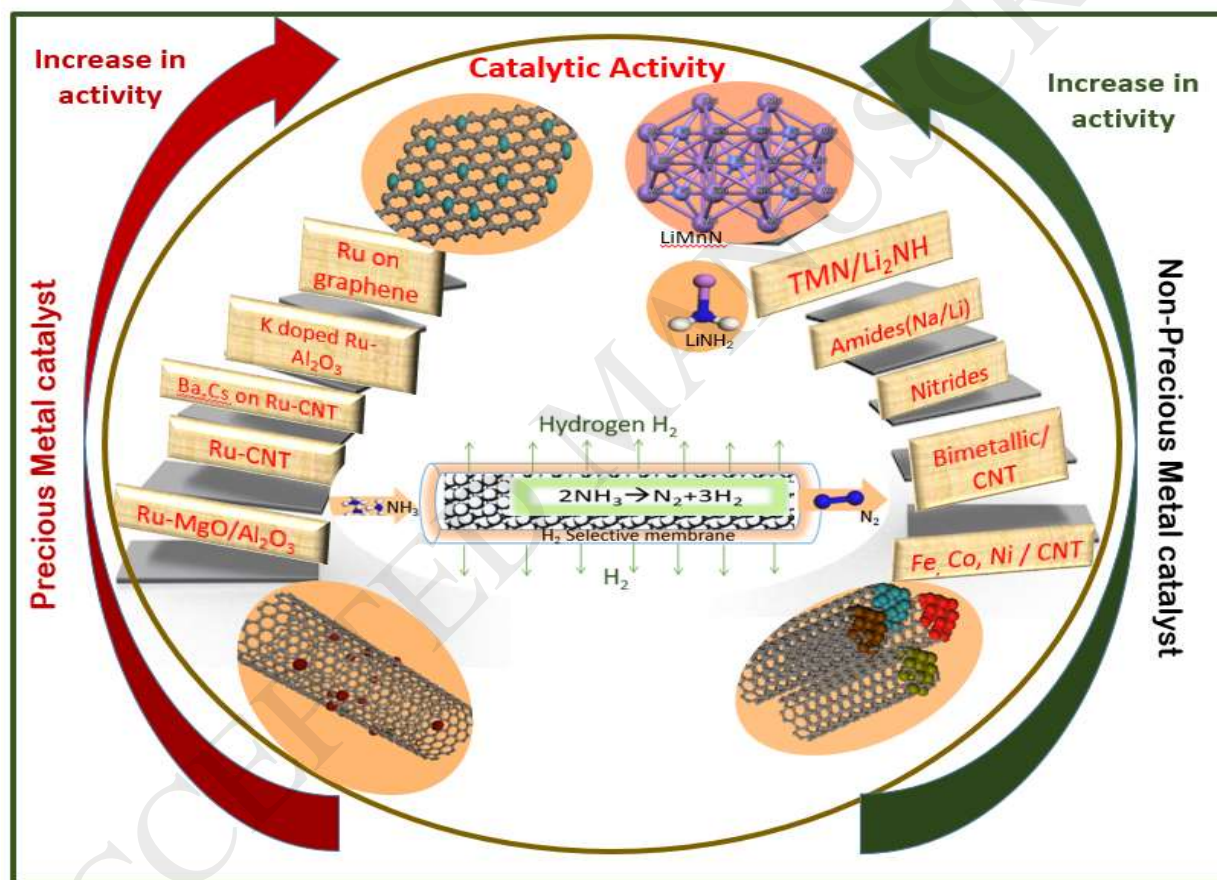
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Graphical abstract



Highlights

- This review provides a comprehensive consideration of various types of nonprecious transition metal catalysts for low-temperature NH₃ decomposition
- Proposed mechanisms of ammonia decomposition on various transition metals are examined.
- Theoretical bases for the design of future catalysts are presented,
- Transition metal nitride-lithium imide composites with a synergy is emphasized

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