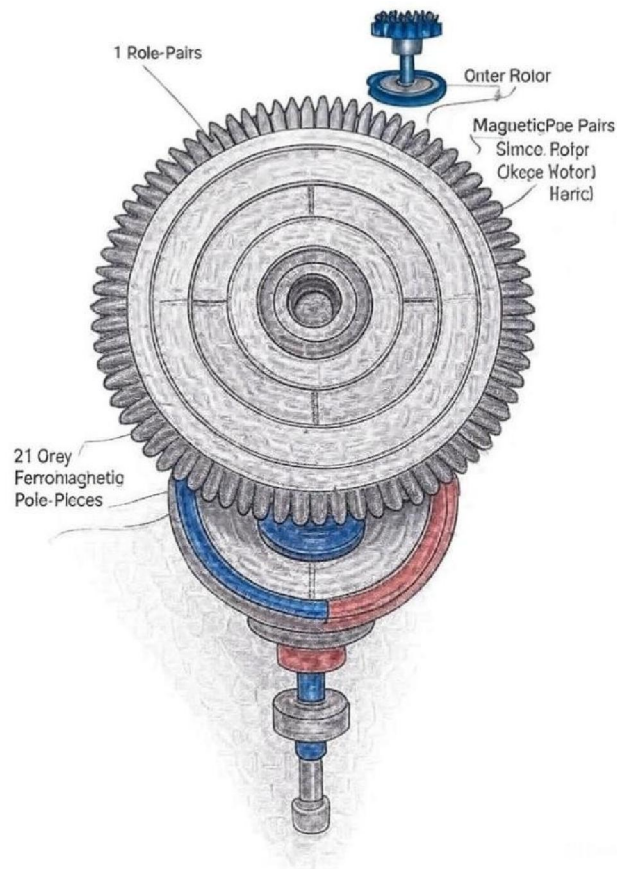


Magnetic Force Analysis for Magnetic Gear

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Abstract: Analysis of magnetic force in magnetic gears is the basis for understanding their efficiency and design. These gears transfer torque with the help of magnetic fields, causing no wear or oil. In this paper, we will discuss the principles of magnetic force, such as Maxwell's Equations and Flux Modulation, and will see how they work in coaxial and axial gears. Will also look at how they are used in electric vehicles, robotics, and industrial motors. However, there are problems such as magnetic leakage and expensive magnets. Based on research from 2018 to 2025, these paper will explain how the analysis of magnetic force increases torque density ($> 200 \text{ nm/l}$) and efficiency ($> 95\%$). AI tools and new materials will improve this technique in future.



Keywords: magnetic force

