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## Challenge to the Synthesis of $\mu\text{Fe}_{16}\text{N}_2$ Compound Nanoparticle with High Saturation Magnetization for Rare Earth Free New Permanent Magnetic Material

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#	Paper	IF	Citations
94	Quantitative understanding of thermal stability of $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> . <i>Chemical Communications</i> , <b>2013</b> , 49, 7708-108	1.3	11
93	Formation and Decomposition of Metastable $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> from in situ Powder Neutron Diffraction and Thermal Analysis. <i>Zeitschrift Fur Anorganische Und Allgemeine Chemie</i> , <b>2013</b> , 639, 2851-2859	1.3	26
92	Stability of $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> in hydrogenous atmospheres. <i>Chemical Communications</i> , <b>2014</b> , 50, 7040-3	5.8	5
91	Polarized-neutron-diffraction study of the microscopic magnetic structure in $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> nanoparticles. <i>Physical Review B</i> , <b>2014</b> , 90,	3.3	6
90	Addition of Co to L10-ordered FeNi films: influences on magnetic properties and ordered structures. <i>Journal Physics D: Applied Physics</i> , <b>2014</b> , 47, 425001	3	15
89	High-pressure sintering behavior of $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> nanopowder. <i>Journal of Applied Physics</i> , <b>2014</b> , 115, 103905	2.5	25
88	Gas phase preparation of spherical core-shell $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> /SiO <sub>2</sub> magnetic nanoparticles. <i>Nanoscale</i> , <b>2014</b> , 6, 6487-91	7.7	21
87	Practical Aspects of Modern and Future Permanent Magnets. <i>Annual Review of Materials Research</i> , <b>2014</b> , 44, 451-477	12.8	152
86	Structural and Magnetic Characterization of Single-phase Sponge-like Bulk $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> . <i>Zeitschrift Fur Anorganische Und Allgemeine Chemie</i> , <b>2015</b> , 641, 348-354	1.3	16
85	Low-Energy Bead-Mill Dispersion of Agglomerated Core-Shell $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub> and $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub> Ferromagnetic Nanoparticles in Toluene. <i>Langmuir</i> , <b>2015</b> , 31, 6011-9	4	10
84	Iron carbide and nitride via a flexible route: synthesis, structure and magnetic properties. <i>RSC Advances</i> , <b>2015</b> , 5, 21670-21674	3.7	15
83	Investigation of nitriding and reduction processes in a nanocrystalline iron-ammonia-hydrogen system at 350 °C. <i>Physical Chemistry Chemical Physics</i> , <b>2015</b> , 17, 20185-93	3.6	10
82	Effect of oxidation on $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> phase formation from plasma-synthesized spherical core-shell $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub> nanoparticles. <i>Journal of Magnetism and Magnetic Materials</i> , <b>2015</b> , 381, 89-98	2.8	22
81	Highly dispersive $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> particle synthesis using hydroxyapatite coating. <i>Journal of Solid State Chemistry</i> , <b>2015</b> , 225, 455-458	3.3	6
80	Increased magnetic moment induced by lattice expansion from $\epsilon$ -Fe to $\epsilon$ -Fe <sub>8</sub> N. <i>Journal of Applied Physics</i> , <b>2015</b> , 117, 173911	2.5	24
79	Preparation and characterization of magnetic films of well-dispersed single domain of core-shell $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub> nanoparticles. <i>Advanced Powder Technology</i> , <b>2015</b> , 26, 1618-1623	4.6	8
78	A method to evaluate $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> volume ratio in FeN bulk material by XPS. <i>Materials Research Express</i> , <b>2015</b> , 2, 116103	1.7	8

77	Iron Nitride Family at Reduced Dimensions: A Review of Their Synthesis Protocols and Structural and Magnetic Properties. <i>Journal of Physical Chemistry C</i> , <b>2015</b> , 119, 1601-1622	3.8	91
76	Broadening our view on nanomaterials: highlighting potentials to contribute to a sustainable materials management in preliminary assessments. <i>Environment Systems and Decisions</i> , <b>2015</b> , 35, 110-128 <sup>4-1</sup>	4.1	4
75	Microstructure Analysis of Melt Spun FeN foils with $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> Phase. <i>MRS Advances</i> , <b>2016</b> , 1, 2373-2378	0.7	1
74	Fabrication and physical properties of [Fe/Fe <sub>4</sub> N]N multilayers with high saturation magnetization. <i>AIP Advances</i> , <b>2016</b> , 6, 056108	1.5	5
73	Synthesis of fine $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> powders by low-temperature nitridation of $\epsilon$ -Fe from magnetite nanoparticles. <i>AIP Advances</i> , <b>2016</b> , 6, 125104	1.5	7
72	Synthesis of Fe <sub>16</sub> N <sub>2</sub> compound Free-Standing Foils with 20 MGOe Magnetic Energy Product by Nitrogen Ion-Implantation. <i>Scientific Reports</i> , <b>2016</b> , 6, 25436	4.9	42
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70	Engineering perpendicular magnetic anisotropy in Fe via interstitial nitrogenation: N choose K. <i>APL Materials</i> , <b>2016</b> , 4, 116104	5.7	10
69	The impact of carbon coating on the synthesis and properties of $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> powders. <i>Physical Chemistry Chemical Physics</i> , <b>2016</b> , 18, 13010-7	3.6	7
68	Growth of L <sub>10</sub> FeNi thin films on Cu(001) single crystal substrates using oxygen and gold surfactants. <i>Thin Solid Films</i> , <b>2016</b> , 603, 348-352	2.2	11
67	Synthesis of $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> Compound Anisotropic Magnet by the Strained-Wire Method. <i>Physical Review Applied</i> , <b>2016</b> , 6,	4.3	16
66	High-purity core-shell $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> /Al <sub>2</sub> O <sub>3</sub> nanoparticles synthesized from hematite for rare-earth-free magnet applications. <i>Advanced Powder Technology</i> , <b>2016</b> , 27, 2520-2525	4.6	13
65	Metastable cobalt nitride structures with high magnetic anisotropy for rare-earth free magnets. <i>Physical Chemistry Chemical Physics</i> , <b>2016</b> , 18, 31680-31690	3.6	23
64	Preparation of an $\epsilon$ -Fe <sub>16</sub> N <sub>2</sub> Magnet via a Ball Milling and Shock Compaction Approach. <i>Advanced Engineering Materials</i> , <b>2016</b> , 18, 1009-1016	3.5	25
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62	Recent developments of rare-earth-free hard-magnetic materials. <i>Science China: Physics, Mechanics and Astronomy</i> , <b>2016</b> , 59, 1	3.6	26
61	Magnetic anisotropy [How much is enough for a permanent magnet?]. <i>Scripta Materialia</i> , <b>2016</b> , 112, 3-8	5.6	134
60	Highly oriented epitaxial ( $\epsilon$ - $\epsilon$ )-Fe <sub>16</sub> N <sub>2</sub> films on $\epsilon$ -Fe(001) buffered MgAl <sub>2</sub> O <sub>4</sub> (001) substrates and their magnetization. <i>Journal of Crystal Growth</i> , <b>2017</b> , 468, 691-695	1.6	3

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57	Perspectives for high-performance permanent magnets: applications, coercivity, and new materials. <i>Advances in Natural Sciences: Nanoscience and Nanotechnology</i> , <b>2017</b> , 8, 013002	1.6	69
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55	Structures, phase transitions, and magnetic properties of Co <sub>3</sub> Si from first-principles calculations. <i>Physical Review B</i> , <b>2017</b> , 96,	3.3	6
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45	Synthesis of Fe-Fe <sub>16</sub> N <sub>2</sub> ribbons with a porous structure. <i>Nanoscale Advances</i> , <b>2019</b> , 1, 1337-1342	5.1	13
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39	Prospect and status of iron-based rare-earth-free permanent magnetic materials. <i>Journal of Magnetism and Magnetic Materials</i> , <b>2019</b> , 469, 535-544	2.8	26
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30	Ferrite Permanent Magnets in Electrical Machines: Opportunities and Challenges of a Non-Rare-Earth Alternative. <i>IEEE Transactions on Magnetics</i> , <b>2020</b> , 56, 1-20	2	21
29	First-Principles Prediction of Enhanced Magnetic Anisotropy of $\delta$ -Phase Fe <sub>16</sub> N <sub>2</sub> With B and C Impurities. <i>IEEE Transactions on Magnetics</i> , <b>2021</b> , 57, 1-3	2	1
28	. <i>IEEE Transactions on Magnetics</i> , <b>2021</b> , 57, 1-5	2	4
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23	Challenges toward development of rear-earth free FeCo based permanent magnet. <i>Electronics and Communications in Japan</i> , <b>2021</b> , 104, e12307	0.4	1
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6	Production and characterization of compacted $\text{Fe}_{16}\text{N}_2$ permanent magnets. <i>Acta Materialia</i> , <b>2022</b> , 235, 118064	8.4	0

- 5 Re-examining the giant magnetization density in  $\text{Fe}_2\text{Fe}_{16}\text{N}_2$  with the SCAN + U method. *Physical Chemistry Chemical Physics*, 3.6 2
- 4 Evaluation of Fe-nitrides, -borides and -carbides for enhanced magnetic fluid hyperthermia with experimental study of  $\text{Fe}_2\text{Fe}_{16}\text{N}_2$  and  $\text{Fe}_3\text{N}$  nanoparticles. 0
- 3 Recent Developments in Hard Magnetic Nanostructured Materials. **2023**, 803-819 0
- 2 Compaction of  $\text{Fe}_2\text{Fe}_{16}\text{N}_2$  particles by high-pressure treatment at several gigapascals. **2023**, 229, 115390 0
- 1 Crystal Structure and Magnetic Properties of Hexagonal FeCo Nitrides Prepared Using Ammonia Gas Nitrification. **2023**, 14, 1-5 0