Korean Researchers Profile

Korea-EU Horizon Europe Researchers Networking Forum 2026 on Cluster 4

Full Name Dohyun KANG

Position CEO

Organization VAM

Email dowajuge@gmail.com

Personal Link(s)

Website : http://www.vamecha.com /
dowajuge@gmail.com

Your Target Call

HORIZON-CL4-2027-01-MAT-PROD-06
Circular innovative advanced materials: facilitating the transition from design to markets (RIA) (Innovative Advanced Materials for the EU and Made in Europe partnerships)

HORIZON-CL4-2027-01-MAT-PROD-22
Innovative advanced materials and new production processes – reducing dependencies on Critical and Strategic Raw Materials (IA) (Innovative Advanced Materials for the EU and Processes4Planet partnerships)

HORIZON-CL4-2027-01-MAT-PROD-61
Fast Track to Research and Innovation for breakthroughs in industrial technologies (Research and Innovation Action)

HORIZON-CL4-2027-04-DATA-09
Energy efficiency and sustainability of AI data processing in Data Centres (IA)

Your Expected Contribution to the Project / Consortium

Ultra High Power Density/Efficiency Motors

a) Reducing Rare Earth Magnet Usage per Unit Output to 1/4.ð
b) Boosting Output and Efficiency Using Recycled Rare Earth Magnet.
c) Achieving Superior Output and Efficiency Using Rare Earth-Free MnBi or Fe16N2 Magnets Compared to Conventional Rare Earth Motors

Biography

1) Do-hyun Kang with Dr. –Ing degree Technical Uni. Braunschweig Germany
2) Venture Company founded (VAM)
   Ultra High Power Density/Efficiency Motors by
   Principal Researcher Dr. Kang in Korea Electrotechnology Research Institute(KERI)
3) Grants by Korean Ministry of Defense in E-Ship "2024 Future Challenge Defense Technology Project"
4) Supporting by AVL start-up program

Research Areas / Expertise

1. VAM Inc. (Value Added Mechatronics) is a pioneering deep-tech enterprise from South Korea, specializing in the design and development of next-generation Ultra-High Power Density and Ultra-High Efficiency Electric Motors and Generators. Founded as an official spin-off from the Korea Electrotechnology Research Institute (KERI) by Dr.-Ing. Dohyun Kang (TU Braunschweig alumnus), VAM Inc. delivers disruptive electric machine topologies.
2. VAM developed ultra high power density/ultra high efficiency motors with more than 3.7 times more output than the same permanent magnet motors. It is also a world-class patented(14 patents in Korea, EU, USA, China) technology that can save electrical energy because it can be expected to improve the efficiency by more than 9%.
3. Our core innovation lies in our Dual-Airgap Vernier Motor technology, which offers distinct breakthroughs directly aligned with the EU's strategic objectives:
   a) Revolutionary Rare-Earth Reduction
      Under identical conditions (size and magnet type), our design increases output power by nearly 4 times compared to conventional motors. In terms of rare-earth usage per unit output, if a conventional motor is 100, ours is only 25—slashing NdFeB consumption to 1/4 (25%).
   b) Unlocking the Potential of MnBi Magnets(or Fe16N2)
      Newly developed MnBi magnets have a remanence flux (Br = 0.6 T) about half that of NdFeB (Br = 1.2 T). While applying MnBi to conventional motors drops output by 50% and efficiency by 5%, applying them to our dual-airgap vernier motor still achieves 2.2 times higher output and a 5% efficiency increase compared to standard NdFeB motors. This makes our technology a game-changer for adopting MnBi magnets.
   c) Overwhelming Cost & Supply Advantages
      While Mn and Bi are on the EU CRM/SRM lists, they carry significantly lower geopolitical risk and raw material costs (tens of times cheaper) compared to rare earths.

Motivation, Expectation and Plan

VAM Inc. is actively seeking to connect with global partners

1) Experienced coordinator for EU Horizon
2) Automotive OEMs & Tier-1 Suppliers:co-developing lightweight, rare-earth-free electric powertrain components.
3) Companies Utilizing High-Power/Efficiency Motors & Generator as Core Components
4) Magnet Manufacturers:seeking to validate sustainable magnet materials in high-demand motor topologies.