

Research Proposal for R&E 2016		
Research Title	Korean	
	English	Superconductor Battery for Electric Cars
Field	Field	Engineering () Math () Physics (○) Chemistry () Biology () Earth Science () Computer Science ()
	Sub-field	Engineering
Period	2016. 3. 1. ~ 12. 31. (10 months)	
<p>I confirmed that the R&E research proposal is reviewed by me.</p> <p>2015. 11. 30.</p> <p>Name of Teacher (Sign)</p> <p>Office of Planning & Research Affairs</p> <p>Korea Science Academy</p>		

[Research Proposal]

Guideline
<ul style="list-style-type: none">○ Write in 3~4 pages of A4 size paper.○ Use 한글 2007 program or MS Word.○ Deadline: 2015. 11. 30.(Mon) 17:00○ Submit to: (file) rne.ksa@kaist.ac.kr / (paper) main building 1207
Research keyword
<ul style="list-style-type: none">○ Superconductors, Applications, Electric Car, Energy efficiency <p>※ maximum 5</p>
Research abstract
<p>○ The world has continued to endure the pollution and destruction that we mankind has brought upon and upon time the world will inevitably collapse if these do not stop. People have been wise enough to come up with brilliant ideas to little by little counter these problems, especially air pollution. The electric car is a brilliant invention that will/has countered the gas-powered cars that rule over the world today, however in reality people have not yet began to consider this world saving invention to their daily lives. One of the obvious reason is that electric cars do not meet the criteria gas-powered cars has to offer. Gas-powered cars have better distance coverage and is easily refilled by gasoline as for electrics cars have less distance coverage and use batteries that takes time to recharge. Also the electric cars are priceless compared to the average gas-powered cars we have today. So now we have come up with a solution to bring electric cars with the upper hand that is to use superconductors as an alternative battery for the electric car that would</p>

enhance the performance, distance coverage and the energy efficiency. Yet alone if this succeeds, society would reconsider taking care of the environment.

Research proposal

☐ Purpose and Motive

Our research purpose is to create a model of an electric car with applying superconductors as an alternative rechargeable battery for the car engine's power source as to improve the range of distance the car can cover. Our group's motive is to also create awareness of the environment through the toughened up electric car that was previously lost to the gas-powered cars.

☐ Background and objective

As now the number of people whom use electric cars are still low considering the distance of coverage the car can provide is not equally comparable to the gas powered cars and requires an unpleasant amount of time to recharge the batteries. Superconductors are materials with highly electricity conductive with utmost no resistance and expulsion of magnetic fields when cooled below a certain temperature depending on the material, in theory we can use the fact that no energy loss will occur to our advantage. In this case our research group

will conduct research on room-temperature or other certain temperature superconductors which are known to have a high great amount of energy storing capacity to apply this into the electric car thus, creating an energy efficient electric car model with better performance, longer distance coverage and energy efficient.

○ Contents and method of research

Our research is divided into three sections

- Approach and research of superconductor materials
- Approach and research of methods of functioning electric cars
- Application of superconductors into electric cars

We will conduct our research on the basis of equally qualitative and quantitate throughout the different types of techniques and ideas used in the research.

Technically we will be conducting experiments on superconductors as on how they will be designed as an electric car battery, engineering basic electric car models as to figure out the engine design with superconductors and the overall car design, applying superconductors into the electric car as with observations

and gathering data on the superconductor electric cars intake and outtakes of energy.

○ Research Plan

As our research team consists of 4 members we can have ourselves divide into 2 groups and work (not entirely) separately on either superconductors or electric car and combine our work at the end in order to save time consumption.

Or we can basically work together as a one team which will force us to rapidly progress throughout the whole year.

Our research will start with the approach on superconductors and how it will be designed, manipulated to work as electric car battery. This will take the first months of the whole research period. Then we can go on with the methods of a functioning electric car and to model the overall car layout design with its applied superconductor battery. We're hoping this can be done until summer vacation. Since the probability of getting our hands on a real electric car is low, we shall conduct research on models and smaller size in comparison to the real life electric car. At last the final stage we test, analyze and compare the

results to an actual gas-powered car. The time to cover the 3 contents will depend on our supervisor.

○ Reference

Electric cars, Electric car battery

www.carsdirect.com

www.baikebaidu.com

www.en.wikipiea.com

Superconductors

www.superconductors.org