

Red: good!

Blue: could be better...

三段構成

自分の軸, 将来について
始めに言及

For Achieving My Dream — Development of Novel Materials

The development of novel materials to enrich human life has always been my guiding philosophy—the very nature of materials science can establish a foundation for improving all technology and human society dramatically. To achieve this, I am keen to consolidate my research capabilities and develop innovative materials in the PhD program at [School name for application]. In this essay, I will mention my accomplishments, my current research, research interest at [School name for application] and finally my future career.

もう少し具体性
欲しい

文章の流石の
説明は必要ない

賞の重要性の
具体的な
説明

奨学金がある
ことのアピール

自分の研究を
具体的に何で
どう行なったか

↑

collaborationで
身につけたスキル
具体性も
欲しい。

2人4人の教授
に2回言及

↓
研究への
理解の
提示。

I believe my achievements demonstrate my passionate for materials science: two academic awards given because I obtained the most credits and the highest grade among [No of students] undergraduate students majoring in the materials science at [Current school name] in Japan. In addition, further recognition of my ability was proven when, in [Year], I was awarded [scholarship Name], providing approximately [\$XX, Amount] for tuition and [\$XX, Amount] for annual allowance for [length of scholarship] during a PhD program. Through my research activities and science workshops in various countries including USA, Germany and China, I realized the excitement by visiting research facilities and learning science and research topics. This burning interest has grown and widened my research skills.

One of the projects which has fascinated me the most was to develop coating technique of hydroxyapatite-based composites by reactive plasma sputtering for bioimplant applications. Starting the research from scratch by my own ideas in my laboratory since my junior year, I elucidated an effect of reaction between hydroxyapatite and additives such as titanium oxide during annealing process on their corrosion properties. I succeeded in improving their corrosion resistance double before applying loads and quintuple after applying loads with pure hydroxyapatite. To expand this research project, I approached [Professor's name for collaboration #1]'s group at the [School name about collaboration #1], by myself for collaborative research; and conducted experiments there to evaluate biodegradability and biocompatibility with financial support from [scholarship name]. This research project resulted in writing two international peer-reviewed papers, giving two oral presentations in international conferences and winning four best poster or presentation awards.

Another project is also collaborative research to develop conformally-coated porous scaffolds for tissue engineering, starting from my internship under [Professor name for collaboration #2] at [School name about collaboration #2]. I have utilized my expertise in materials fabrication for this project by combining her acclaimed scaffold fabrication technique. Drawing upon the two projects mentioned above, I have broadened my research skills and experienced firsthand the powder of collaboration for interdisciplinary materials science research; meanwhile, I discovered the importance of having unique and strong expertise to develop new materials.

↓
mis-spelling (power)

To build upon my specialty for materials development, [Professor name #1]'s group is particularly attractive to me because it combines etching technique to design nanoporous structure and deposition technique to create enormous types of materials with nano 3D hierarchical architecture which show the size effect. This makes it the most unique method in the world for novel materials designing; it innovates in not only structural materials but also other applications such as thermoelectrics and solar cells. Moreover, research by [Professor name #2]'s group also fascinates me. In particular, the use of texture influencing the local phase transformation is also a very unique approach to develop new superalloys.

My wide research capabilities and knowledge with experience of instigating research projects can contribute to these two professors' research groups. For instance, in [Professor name #1]'s group I can employ my experimental skills related to SEM operation and cell culture for research regarding 3D scaffold for analyzing mechanism of osteointegration. Moreover, my

1=10

自分の研究の
重要性

大学の研究の
価値

具体的な
研究の
価値

価値
研究への
貢献

deep metallurgy knowledge highlighted by [Award name] can definitely help [Professor name #2]'s research. In addition, my strong science communication skills to discuss research with scientists who have different backgrounds—essential to interdisciplinary materials science research—can bring new perspectives to their research groups. Such strong communication skills led me to win [Competition name], by defeating other applicants—including renowned professors.

実験以外での
研究への貢献

自己の
将来

After deepening my expertise with wide research capabilities, upon graduating from [School name for application], I will be in the unique position being one of the only materials scientists focusing on materials development on the global stage. Consequently, I am eager to pursue my research in a world-leading institute to achieve my ambition to develop materials to impact human life. Ultimately, I would like to be a professor who contributes to the science field and younger generations, with the goal of creating a legacy that consists of not only technology replaced day by day, but also linking to next generation. I have been fortunate to chase my dream thanks to my research advisors; thus, I desire to pass on such an opportunity to the next generation.

もちろん
具体性が
欲しい

結論

Since [School name for application]'s small size make it special as the size effect in materials creates special properties, [School name for application] is my primary choice to pursue my study. Having read about the achievements, studies and interests described in this essay, you will recognize what quality I can bring to your institute. I am so enable me to contribute to [School name for application], entire science fields, and finally human life, which is my dream.

洒落