

情報ストレージシステム研究室 1

1) 当該研究室の研究成果について

Excellent Very Good Good Fair Poor

日本のそして世界の磁気記録の中心となる研究活動を行っている伝統ある研究室であり、次世代の記録技術である HAMR や MAMR に関するシミュレーション解析などで世界をリードする結果を出している点は高く評価できる。

磁性ナノワイヤへの記録機構解析や、情報ストレージシステムの構築技術など、新規なストレージ分野への展開方向も感じられる。しかしながら、磁気記録技術が高度化して大学でのデバイス調達や作製ができず、シミュレーション主体の研究になりがちなところと、磁気記録の高密度化が頭打ちとなっている状況で、今後の研究展開方向の選択は重要となると考えられる。

2) 当該研究室構成員の学会活動について

Excellent Very Good Good Fair Poor

村岡教授の国内関連学会（映像情報メディア学会、日本磁気学会）での主導的な活動や、Simon 准教授の海外での主要な国際学会（IEEE）での AdCom やプログラム・出版関連の委員活動はそれぞれの分野で重要な活動に位置付けられ、世界や日本の当該分野での認知度ならびに評価は高いものと思われる。

3) 当該研究室構成員の社会貢献について

Excellent Very Good Good Fair Poor

村岡教授の立ち上げられた災害に強いストレージシステム構築に関する研究分野は、現代社会における重要な提言にもなりインパクトのある内容と考えられる。

Simon 准教授の社会貢献活動が若干少ないように思われるが、国際性を発揮できる活動などに注力されれば特徴のある活動になるものと考えられる。

4) 当該研究室の競争的資金の獲得状況について

Excellent Very Good Good Fair Poor

コンスタントに情報ストレージ関連の研究資金を得ながら活動していることは評価できるが、大きな資金を得ているようにはみえず、科研費も少ないようである点が若干気になる。

5) 国際共同研究・連携研究・連携教育活動の実績について

Excellent Very Good Good Fair Poor

村岡教授や Simon 准教授の国内および国際的なネットワークに基づいた研究活動が成果を上げており、共同研究論文の実績も高い。ASTC 等、国際的な磁気記録技術研究機構での活動も高く評価できる。磁気記録技術やストレージシステム構築技術は、専門性の高い多数の分野の総合技術的な位置づけの研究となるため、必然的に共同研究も多くなり、実績も高くなっているものと考えられる。

6) 共同利用・共同研究拠点活動の実績について

() Excellent (*) Very Good () Good () Fair () Poor

国内のおよび国際的なネットワークに基づいた研究活動が成果を上げており、共同研究が推進されていると考えられる。

7) その他、総合的なコメント

2018年の村岡教授の退官に伴って、当該研究室も新たな方向性を模索している段階かと思われる。

新たに田中陽一郎教授が着任され、ストレージに関係したシステム化技術などに注力され、Simon 准教授のシミュレーション技術を駆使した新たな研究の方向性を構築されることを期待しています。

情報ストレージシステム研究室 2

1. How would you evaluate the research activities in this period?

Excellent Very Good Good Fair Poor

Historically Muraoka-lab has been the world's top lab in the field of what is known as Recording Physics and Engineering. However during the review period Prof Muraoka retired from RIEC and some reduction in scale in the last 2 to 3 years was inevitable. There has also been some redirection of the technical interests of the laboratory. However the work done at the beginning of the review period was at the same level of excellence as has historically been the case back to the time of Prof Iwazaki.

2. How would you evaluate the activities of the members in the laboratory for the academic societies?

Excellent Very Good Good Fair Poor

Prof Muraoka has been a prominent and highly valued member of the IEEE Magnetics Society dating back to my time as Society President in 2004 to 2006. He has held many senior positions most notably as Chairman of the Conference Executive Committee which organises both the Intermag and MMM Conferences each with more than 1,500 participants, he has been Programme Chair and a regular member of programme committees for more than 10 years. In the final two years prior to his retirement he was the Chairman of the Magnetics Society Fellows Committee which is a very senior position with a large international responsibility.

Simon Greaves is also becoming prominent in the IEEE Magnetics Society and he has been on numerous programme committees for our main conferences and is currently an elected member of the main management committee (AdCom) a position to which he was elected by an open ballot of our 3000 members.

3. How would you evaluate the contribution of the laboratory to society?

Excellent Very Good Good Fair Poor

Historically Tohoku University and in particular RIEC and IMR have been world leading laboratories across a wide range of disciplines. In particular Muraoka lab has collaborated widely not only with Japanese industry but with industry on a worldwide basis. In a time when scientific and engineering research has become a truly globalised international sphere of activity it can be argued that the university, the institutes and indeed Muraoka-lab have been well ahead of most other institutes in Japan and indeed elsewhere.

Given the contribution to the major change in Society brought about by the advent of the worldwide web and most recently cloud computing, the contribution in a societal sense is clear and of the highest level.

4. How would you evaluate the lab's level of funding?

Excellent Very Good Good Fair Poor

I am not sure of the level of base line funding that is provided by the institute, the university or government to the work of RIEC or indeed Muraoka-lab. However I am surprised to see what I

regard as a relatively modest level of funding compared to a laboratory here in the UK. Most of the funding appears to come from the Japanese industry consortium associated with hard drive information storage but I am surprised not to find funding for major equipment purchases but this may reflect my lack of knowledge of how such things are funded in Japan.

Furthermore with the retirement of Prof Muraoka it is not surprising that the funding is low because obviously he would need to run down and complete projects without applying for additional funding to go beyond his retirement date. Also with the retirement of Prof Muraoka there will be some redirection of the laboratory's activities and presumably that will be reflected in an increase of the funding required.

5. How would you evaluate the lab's collaborative research, including international joint research and collaborative education?

(*) Excellent () Very Good () Good () Fair () Poor

Based on my previous comments there is no doubt that Muraoka-lab has for many years been world leading in its collaboration with overseas universities, research institutes and industry. I began collaborating with what was then Nakamura-lab in the 1990's and have continued to collaborate with them at some level intermittently ever since. Visiting RIEC and in particular Muraoka-lab has always been a pleasure. They are most welcoming and hospitable and actively seek out collaborators not only in Japan but on a worldwide basis.

6. RIEC is one of Japan's "Joint usage/Research Center" or "Nation-wide Cooperative Research Projects" institutes. How would you evaluate the achievements of work done under this framework?

(*) Excellent () Very Good () Good () Fair () Poor

Based on my comments above I am pleased to say that I was very happy to provide a letter of support for the designation of the Joint Usage/Research Centre and Nation-wide Cooperative Research Projects applications. As always with RIEC their openness and participation in collaborative efforts have been outstanding. I am sure the evaluation by the government authorities will reflect this whenever it is undertaken.

7. Additional or overall comments

For the last five years it has been my pleasure to lead the University of York component of a JSPS Core-to-Core Project in collaboration with RIEC and IMR. The level of collaboration and cooperation and the quality of the research undertaken has been of the highest standard. This would not have been possible without the overall level of technical excellence in RIEC which is without doubt the world's leading centre for research in the field of technological magnetism and the facilities are by far the best in the world for research in our field.

However in addition to the scientific and infrastructural quality it is the willingness to be open and very welcoming to those from around the world which sets Tohoku University in general but in particular RIEC apart from any other centre. In my experience this extends to all labs within the institute without exception.

情報ストレージシステム研究室 3

1. How would you evaluate the research activities in this period?

(*) Excellent () Very Good () Good () Fair () Poor

The PI of the institute publish every year several papers as last authors but also as first authors in relevant journals for storage community.

2. How would you evaluate the activities of the members in the laboratory for the academic societies?

(*) Excellent () Very Good () Good () Fair () Poor

In the last 5 years the group members have been active as Programme committee member in 5 international highly recognized conferences. Furthermore they act as editor and referees for various journals.

3. How would you evaluate the contribution of the laboratory to society?

(*) Excellent () Very Good () Good () Fair () Poor

Annual presentations at an Open Campus and Open Day events are given to the general public. Furthermore lectures are given at National Institute of Technology

4. How would you evaluate the lab's level of funding?

(*) Excellent () Very Good () Good () Fair () Poor

Funding of the the most important recording consortium SRC is obtained every year.

Furthermore with the retirement of Prof Muraoka it is not surprising that the funding is low because obviously he would need to run down and complete projects without applying for additional funding to go beyond his retirement date. Also with the retirement of Prof Muraoka there will be some redirection of the laboratory's activities and presumably that will be reflected in an increase of the funding required.

5. How would you evaluate the lab's collaborative research, including international joint research and collaborative education?

(*) Excellent () Very Good () Good () Fair () Poor

Various cooperation with leading groups in Singapore and university of york are active

6. RIEC is one of Japan's "Joint usage/Research Center" or "Nation-wide Cooperative Research Projects" institutes. How would you evaluate the achievements of work done under this framework?

() Excellent () Very Good (*) Good () Fair () Poor

7. Additional or overall comments

The reasearcher of the RIEC Research Laboratory are world wide highest class and well recognized in the field. High quality research is done and guaranteed by the researcher. The research results are very objective described and are important to the community.