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Editor's Note

As the special issues 3805, 3806, 3807 and 3808 of **Mössbauer Effect Reference and Data Journal** (MERDJ) for celebrating together the five year anniversary of **Mössbauer Effect Data Center** (MEDC) relocated at **Dalian Institute of Chemical Physics** (DICP), **Chinese Academy of Sciences** (CAS), Dalian, China.

In 3805 issue, we published the contribution from the founder & former MEDC's director of Professor John G. Stevens: The Mössbauer Drivers: Past, Present and Future.

In 3806 issue, we published the review article on the latest collaborative advances in the Mössbauer spectroscopic investigation on bulk and supported iron-based silicides.

In 3807 issue, we collected together the conference and presentation lists as well as submitted abstracts of MEDC's staff in the past five years.

In 3808 issue, some important materials related to the MEDC's past developments and future mission planning were collected together. Here, as continued, we collected the Proposal for Hosting and Operating MEDC in the Future submitted by Professor Tao Zhang and me in the beginning, two big event news reports: MEDC settled in DICP and the 8th International Symposium on the Industrial Applications of the Mössbauer Effect (ISIAME 2012) held at DICP as well as the MEDC's latest large poster.

Junhu Wang
Secretary General and Editor

Proposal for Hosting and Operating Mössbauer Effect Data Center in the Future

Tao Zhang and Junhu Wang
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(i) It is well-known that the role of the Mössbauer Effect Data Center (MEDC) within the international Mössbauer community is vitally important. MEDC was founded in 1969. Ever since it's founding, headed by Prof. John Stevens, it has made great achievements. Presently, MEDC is the world's sole central repository for the more than 50,000 published papers on the Mössbauer effect, dating back to 1958. Its library contains a rare and unusual collection of English and other-language books, doctoral theses, conference proceedings, and other rarities. In view of the MEDC's above importance, we strongly hope that MEDC should remain fully active with its current status at North Carolina University at Asheville.

(ii) However, according to the Circular that Prof. Frank Berry has sent recently, the Center's current situation is worrying. It is greatly possible to be closed by the University of North Carolina at Asheville in the near future. In order to maintain and carry forward its important role within the international Mössbauer community, a new institution should be selected for hosting and operating the Center at this stage.

(iii) Here, on behalf of Dalian Institute of Chemical Physics (henceforth referred to as DICP), Chinese Academy of Sciences (henceforth referred to as CAS), we formulate the proposals for hosting and operating the

Center in DICP in the future. DICP will be responsible for operating MEDC. We cordially welcome MEDC move to DICP in case it is closed by North Carolina University at Asheville in the future.

(iv) If MEDC move to our institute, Prof. Tao Zhang, the present Director of DICP, will take the responsibility of Director of MEDC. Prof. Junhu Wang will be appointed as the Permanent Secretary of MEDC. At the same time, in view of their great achievements to host and operate MEDC and reputation within the international Mössbauer community, Prof. John Stevens and Prof. Frank Berry will be recommended as two honorary Directors of MEDC.

(v) A brief introduction of DICP: Dalian Institute of Chemical Physics (DICP), Chinese Academy of Sciences (CAS) is a national institution. It was founded in 1949. It is a multidisciplinary institute engaging in both fundamental and applied researches of chemistry and chemical engineering, especially with strong abilities for technological development. It has developed its own features in catalytic chemistry, engineering chemistry, organic synthetic chemistry, chemical lasers and molecular reaction dynamics, as well as in modern analytical chemistry, especially in chromatography. It has ten laboratories, including three state key laboratories and three national centers. For more details, please see http://english.dicp.cas.cn/.

President Jintao Hu inspected DICP on June 11, 2002

(vi) Mössbauer-related activities of DICP: For researching & developing novel catalysts mainly applied for the Fische-Tropsch synthesis process to produce syn-fuels from coal & oil, as one of important and unique approaches from the basic point of view, Mössbauer spectroscopic studies started at DICP from the early years of 1980s. Furthermore, at that time, a fruitful international collaboration had been established between DICP in China and The University of Birmingham in United Kingdom. Prof. Frank Berry (immediate past president of IBAME) was one of the most active members for the fruitful collaboration. Since then, Mössbauer technique always plays an important role in the development and characterization of novel nano-catalytic materials at DICP. In 2004, based on the urgent needs of the development of catalysis in China, Prof. Tao Zhang, presently Director of DICP, decided to further enhance the Mössbauer spectroscopic studies at DICP. Prof. Junhu Wang was invited to return to China from Japan, and was appointed as the team leader of the new Mössbauer research project in 2007. Recently, over again, a well-equipped Mössbauer laboratory has been built and a youthful research team has been organized in DICP. Two representative publications from DICP in 1980s are listed as below:

1) Berry F. J., Lin L.W., Wang C.Y. et al., An in-situ Mössbauer investigation of the influence of metal support and metal metal interactions on the activity and selectivity of iron ruthenium catalysis, J. Chem. Soc. 81, 2293-2305 (1985).

2) Tang R. Y., Zhang S, Wang C. Y. et al., An in-situ combined temperature-programmed reduction-Mössbauer-spectroscopy of alumina-supported iron catalysts, J. Catal. 106, 440-448 (1987).

(vii) A brief introduction of Prof. Tao Zhang: He got his Ph.D. degree of DICP, CAS in 1989, and became a Professor in 1995. He is at present the Director of DICP. The main research area of Prof. Zhang is industrial catalysis. Prof. Zhang's recent research interests involve "catalytic decomposition technology for non-toxic propellants", "environmental catalysis" and "new catalytic materials". For more details, please see http://www.taozhang.dicp.cas.cn. Prof. Zhang started his Mössbauer-related activities from the early years of 1980s. His doctoral dissertation titled as "study of carbon deposition on highly dispersed Pt/Al_2O_3 and $Pt\text{-}Sn/Al_2O_3$ catalysts for dehydrogenation of alkanes". ^{119}Sn Mössbauer technique was effectively applied to investigate the structural and mechanistic properties of Pt-Sn catalytic materials. In order to promote his Mössbauer-related skills, he ever studied in Prof Frank Berry's group at The University of Birmingham for one years as a visiting scholar. At that

time, he conducted a fruitful international collaboration with Prof. Frank Berry. Since that date, Prof. Zhang always maintains a strong interest on Mössbauer applications in catalysis & materials. Recent years, in order to achieve world-class of the Mössbauer-related activities in DICP, Prof. Zhang advocated further strengthening of Mössbauer research and communication. His two representative Mössbauer-related publications are listed as below:

1) Berry F. J., Jobson S., Zhang T. et al., In situ characterisation of heterogeneous catalysts by Mössbauer spectroscopy, Catal. Taday 9(1-2), 137-143 (1991).

2) Wang, X. D., Zhao X. Q., Shen J. Y., Sun X. Y., Zhang T. et al., A Mössbauer study of In-Fe_2O_3/HZSM-5 catalysts for the selective catalytic reduction of NO by methane, Phys. Chem. Chem. Phys. 4, 2846-2851 (2002).

(viii) A brief introduction of Prof. Junhu Wang: He got his Ph.D. degree of Toho University (Supervisor: Prof. Masuo Takeda) in Japan in 2002, and became a Professor in 2008. His present main research lines at DICP involve "development and application of novel catalytic materials" and "in-situ Mössbauer characterization". At DICP, presently, Prof. Wang plays a central role on the research of in-situ Mössbauer spectroscopic characterization on catalysis and materials chemistry. He graduated from Radiochemistry of Modern Physics Department at Lanzhou University in China in 1991. He started his Mössbauer-related activities since 1996. His doctoral thesis dealt with Mössbauer spectroscopic studies on gadolinium, erbium and neptunium compounds. He investigated the structures and bonding of lanthanide and actinide compounds by using ^{155}Gd, ^{166}Er and ^{237}Np Mössbauer spectroscopies. Since that time, Mössbauer characterization is always his most main research field. His Mössbauer-related activities were once introduced in the Newsletters on Mössbauer spectroscopy in Japan in a special issue of MERDJ (Mössbauer Effect Reference and Data Journal) in 2002. He has been selected as one of the Emerging Researchers in Prof. Stevens's special talk at Vienna this year. He has published more than 30 Mössbauer-related papers up to now, including one chapter of book and one technical report. For more details, please see http://www.htch.dicp.cas.cn/english/Member/Wangjh.htm. Recently, he has been granted the outstanding scholarship foundation of CAS (100 Talents Program) for promoting the applications of in-situ Mössbauer technique on aerospace catalysis & new materials in China. Dr. Wang also has a dream that the Mössbauer technique can also be applied to Chinese spaceflight exploration in the near future like the famous MIMOS II. His two representative Mössbauer related publications are listed as below:

1) Wang J., Structural characterization of the $Gd_xZr_{1-x}O_{2-x/2}$ system by ^{155}Gd Mössbauer spectroscopic study, Chapter 8 in Nucl. Mater. Res. Developments, Nova Sci. Pub. (ISBN 1-60021-432-0), New York, 317-340 (2007).

2) Wang J., ^{155}Gd, ^{166}Er and ^{237}Np Mössbauer spectroscopic studies on the structure and chemical bonding in lanthanide and actinide compounds, LSST Tech. Report (ISSN 1880-327X), Chukyo Uni. Jpn., No. 2006-2, 1-29 (2007).

(ix) Aims and objectives of MEDC in the future: Essentially, the Center moved to DICP will keep firmly the existing mission of present MEDC headed by Prof. John Stevens. It will as always aim to provide the international Mössbauer research community with a variety of information needs, including the maintaining of bibliographical and data computer databases. Data and information are disseminated routinely via Internet-accessible databases, printed handbooks, a monthly data journal, the Center's Web pages and e-mail. In addition, MEDC will continuously assist the organizers of international, national, and regional Mössbauer conferences in their planning and communications and provides support to the International Board on the Applications of the Mössbauer Effect (IBAME), the governing body of the international Mössbauer research community. The Center also continuously acts as an information center for international Mössbauer researchers on a regional basis, such as those groups working in Latin America, Europe, Russia and Japan. The Center's objectives are as bellows: we will listen very carefully to the international Mössbauer community for their suggestions, fully develop and promote the international Mössbauer community, timely update the database, create innovative tools and resources, and reach a more global audience – all toward the goal of ensuring that scientific knowledge relating to the Mössbauer effect is available to all scientists, students, and research groups.

(x) About how the Center would be operated, how it would be staffed, and embryo ideas for its future development: The Center will be designated as a research center authorized by DICP. At the same time, we will try to apply and let the Center being an international non-profit academic organization in China. The Center will maintain two Web pages: <http://www.dicp.cas.cn/medc> and <http://www.mossbauer.org>. Considering the current global economic crisis, in order to maintain a sustainable and long-term development, we will do our best to make the Center much more useful to the international Mössbauer communications under an efficient operation. The existing international advisory board of 21 scientists, along with 11 associate editors will continuously be invited to provide insight, assistance, and direction for the Center. The basic model for the operation of MEDC is for (1) DICP will supply the space, facilities and services to the Center, (2) At least more than one Mössbauer researchers will be oversight and involvement of the Center and (3) At least one staff will have operational responsibilities (office management, managing finances, production oversight, etc.). We will be conscientious and responsible in maintaining the international characteristics of the Center. MEDC will be kept as the nucleus of the international Mössbauer research community, through our collection and dissemination of research results, our involvement in international and national conferences, our efforts in assisting individual research laboratories globally, and our involvement with the International Board on the Applications of the Mössbauer Effect (IBAME). The Center will reserve the International Advisory Board consisting of 21 scientists and 11 Associate Editors for the Center's monthly publication – the Mössbauer Effect Reference and Data Journal (MERDJ). We will ensure the smooth progress of the following work:

Website Development – the Center will develop, maintain, and host two websites with international scope: <www.dicp.cas.cn/medc> and <http://www.mossbauer.org>, providing vital information, both scientific and community-oriented, to the community world-wide.

Data Collection – the Center will research, request, collect, file, and process the existing database over 50,000 published scholarly articles referencing the Mössbauer effect.

Journal Publication – the Center will publish 10 issues of the MERDJ annually, with an additional Index issue.

Handbook Publication – the Center will publish customized Mössbauer Handbooks on specialized topics.

Database Access – the Center will provide to Mössbauer researchers Web-based access to its full database on a subscription basis, and the Center staff will conduct research to enhance and expand the capabilities of the database and effort to open the database to the general public for use.

IBAME Information Access – the Center will host the IBAME information pages on the Mössbauer community website – including the IBAME Constitution, minutes of all meetings, and a list of its elected representatives and their contact information, and hosts an email List Serve for IBAME board members.

Conference Organization – the Center will promote and provide occasional programming for all of the major international Mössbauer conferences: (i) the International Conference on the Applications of the Mössbauer Effect (ICAME), held every two years, (ii) the International Symposium on the Industrial Applications of the Mössbauer Effect (ISIAME), held every four years, and (iii) the Latin American Conference on the Applications of the Mössbauer Effect (LACAME), held every two years.

Conference Hosting – the Center will be hosting the next ISIAME, to be held in 2012.

Information Dissemination – the Center will provide an email service called Mössbauer E-Missions, with information on upcoming conferences, deadlines, position openings in Mössbauer research laboratories, equipment requests, and other announcements.

Nomenclature – the Center will help to develop and maintain reporting standards for Mössbauer research approved by the International Union of Pure and Applied Chemistry (IUPAC).

(xi) The support will be officially provided by DICP from various aspects for hosting and operating the Center. DICP has promised to supply partially financial support to the Center at the initial stage. The existing infrastructure of DICP is good enough for hosting MEDC by providing particular space, equipment and administrative resources. The Center will impropriate DICP's room space, computer connectivity, files, servers and computers. Here, on behalf of DICP, we guarantee that

MEDC will continue to develop according to the existing version and mission of MEDC. The comments and suggestion from all members of IBAME are welcomed.

(xii) We will apply for an account in DICP for MEDC. All of the financial activities of MEDC will be managed by the financial department of DICP. All of the activities related to MEDC will follow the Chinese laws and regulations of DICP.

(xiii) Envisaged financial structures: The main revenue of the Center in the future will come from the sponsors, affiliates, and subscriptions of journal & database. Surely, partially financially support will be possible from DICP and/or CAS. The main expenditures will be the partial salaries of staff and daily operations (journal publication, etc.).

(xiv) Contact information:

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Mössbauer Effect Data Center (MEDC) Settled in DICP

"Opening Ceremony of Mössbauer Effect Data Center (MEDC) and International Symposium on Mössbauer Spectroscopy" were held at DICP on 23-25 June, 2010. More than 70 Mössbauer scientists from abroad and China participated in this event. On the opening ceremony, welcome speech was made by Prof. ZHANG Tao, Director of Dalian Institute of Chemical Physics (DICP), Chinese Academy of Sciences (CAS). Congratulation messages were separately given by Prof. BERRY Frank, Past Chairman of International Board on the Applications of the Mössbauer Effect (IBAME), Prof. REISSNER Michael, General Secretary of IBAME, Prof. STEVENS John, Past Director of MEDC, Prof. SAITOVITCH Elisa Baggio, Past Vice-Chairman of IBAME, Prof. CHAI Zhifang, Member of CAS and from Institute of High Energy Physics, CAS and Prof. ZHU Shengyun, General Secretary of Chinese Nuclear Physics Society.

Among others were included the following distinguished guests and specialists: Vice-Director of DICP (Prof. LIU Zhongmin), three

Members of CAS from DICP (Prof. LIN Liwu, Prof. LI Can, and Prof. BAO Xinhe), Chairman of Chinese Mössbauer Community (Prof. LI Fashen), Vice-Chairmen of Chinese Mössbauer Community (Prof. ZHANG Guilin and Prof. YANG Xielong), Members of IBAME separate representative of Japan (Prof. YOSHIDA Yutaka) and Spain (Dr. MARCO J. F.), Prof. WYNTER Clive from New York and Dr. ENGELMANN Horst representative of the WissEl Company.

The mission of MEDC is to provide information needs to the international scientific community in the field of Mössbauer spectroscopy. It is well known that the role of MEDC within the international Mössbauer community is vitally important. MEDC was founded in 1969 at the University of North Carolina at Asheville in the United States. Since the founding of the Center, headed by Prof. STEVENS John, it has made great achievements. Presently, MEDC is the world's sole central repository for the more than 50,000 published papers on the Mössbauer effect, dating back to 1958.

MEDC is relocated in DICP since 1 July 2010. Prof. ZHANG Tao, Director of DICP, will take the responsibility of Director of MEDC. Prof. WANG Junhu is appointed the Executive Secretary of MEDC. In view of their great achievements to host and operate MEDC and reputation within the international Mössbauer community, Prof. STEVENS John and Prof. BERRY Frank will be recommended as two Honorary Directors of MEDC.

Essentially, the new Center at DICP will keep firmly the existing mission of past MEDC headed by Prof. STEVENS John. It will as always aim to provide the international Mössbauer research community with a variety of information needs, including the maintaining of bibliographical and data computer databases. Data and information are routinely disseminated via Internet-accessible databases, printed handbooks, a monthly data journal, the Center's Web pages and e-mail. In addition, MEDC will continuously assist the organizers of international, national, and regional Mössbauer conferences in their planning and communications and provides support to the IBAME, the governing body of the international Mössbauer research community. The Center also continuously acts as an information center for international Mössbauer researchers on a regional basis, such as those groups working in Latin America, Europe, Russia, Japan and China. The Center's objectives are as bellows: we will listen very carefully to the international Mössbauer community for their suggestions, fully develop and promote the international Mössbauer community, timely update the database, create innovative tools and resources, and reach a more global audience - all toward the goal of ensuring that scientific knowledge relating to the Mössbauer effect is available to all scientists, students, and research groups.

8th ISIAME Held at DICP

The 8th International Symposium on the Industrial Applications of the Mössbauer Effect (ISIAME2012) was convened at DICP from 2nd to 7th of September, 2012. It was sponsored by the Mössbauer Effect Data Center (MEDC), DICP, CAS and co-sponsored by the Lanzhou University's Key Laboratory for Magnetism and Magnetic Materials of the Ministry of Education. On the opening ceremony, a welcome speech was given by Prof. Tao Zhang, Director of DICP as well as Member of International Board on the Applications of the Mössbauer Effect (IBAME) and Director of MEDC as well as Chairman of ISIAME2012.

This was for the first time that ISIAME was held in China after its initiation 32 years ago. More than 130 scientists from 26 countries and regions participated in the symposium. Papers involving 15 main topics, including the applications of the Mössbauer effect in catalysis, energy, environment, biology, fuel cell materials, surface modification, nanotechnology, magnetic materials and superconducting materials, etc.

For the sake of encouraging more young scientists and graduate students joining in the applied studies of the Mössbauer effect, an award for outstanding posters were established, and on the closing ceremony, 11 young participants, including Dr. MoulayTaharSougrati from France, Dr. Teng He from DICP, and Dr. Miao Li from Dalian University of Technology (China), were granted the Outstanding Poster Award by Prof. Junhu Wang, Secretary General of MEDC as well as Vice-chairman of ISIAME2012, on behalf of the Organizing Committee of the symposium.

In memorizing the passing away of Prof. Rudolf Mössbauer one year ago, as well as in memorizing several prominent scholars working in the Mössbauer effect fields who had died recently, 3 special memorial sessions were organized during the symposium.

Full papers presented in the symposium will be published in a special issue of the Hyperfine Interactions journal, and video records of the ISIAME2012 will also be put on the Internet for public reference.

A concluding remark of the symposium was given by Prof. John Stevens of the North Carolina University at Asheville, USA. After briefing on the developing course of the ISIAME, he gave the affirmation for the organizing work of the present symposium, and expressed gratitude for the efforts of the MEDC staff and the graduate student volunteers.

Mössbauer Effect Data Center

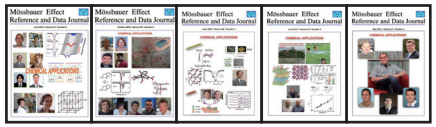
The Mössbauer Effect Data Center (MEDC) provides information services to the international scientific community in the field of Mössbauer spectroscopy

Journal

The *Mössbauer Effect Reference and Data Journal* (MERDJ, ISSN0163-9587) is published 10 times per year, with an annual Index. The purpose of this special journal is to report as thoroughly as possible all published information on Mössbauer spectroscopy. In every issue one can find the *Mössbauer Spectroscopy Newsletter*, which provides information on review articles, conferences, research activities of various laboratories, position openings, and other information of interest to the community. Starting September 2010 (MERDJ-3307) the *Journal* is published at the new location – Dalian Institute of Chemical Physics (DICP), Chinese Academy of Sciences (CAS), Dalian, China.

The *MERDJ* specially promotes international conferences on Mössbauer Spectroscopy, including ICAME, ISIAME, LACAME, and regional conferences and meetings. Once a year, a special issue is devoted to developments in instrumentation.

From 2011, we are in the process of changing the format of the *MERDJ* so that it will be of better use to the community. From 3401 issue, we started to add a new forum: *Mössbauer Reviews* to the *Mössbauer Spectroscopy Newsletter*. This forum is to provide a critical, comprehensive, authoritative, and readable review or summary on recent imposing Mössbauer research. Up to date, professor Yann Garcia was invited as guest editor and had published five issues special edition with the topic of "Mössbauer Spectroscopy Chemical Application".



Prominent scientists and younger scientists in the field of Mössbauer spectroscopy are featured in special editions of the *Journal*. Many interesting stories of their lives and scientific careers have been reported. Past features include profiles of Rudolf Mössbauer, Elisa Baggio-Saitovitch, Rolfe Herber, Philipp Gütlich, Steen Mørup, Igor Lyubutin, Guido Langouche, Dean Taylor, Fritz and Ursel Wagner, Jean-Marc Greneche, Attila Vertes, Gary Long, Teruya Shinjo, Frank Berry, Israel Nowik, Göstar Klingelhöfer, Werner Keune, Ali Trautwein, Dénes Lajos Nagy, Igor Suzdalev, Gennadii Smirnov, Gopal Shenoy, Erno Kuzmann, Frans Waanders and 9 Emerging Younger Leaders of the Mössbauer Community.

Communication

MEDC hosts the Mössbauer Effect Community Website, dedicated to bringing together scientists, students, and research groups interested in Mössbauer spectroscopy.

The site contains basic information on the Mössbauer effect, as well as information and news pertinent to the Mössbauer Community.

Of particular note is the IBAME information located on the site, which includes contact information for each elected IBAME member, minutes of IBAME meetings, and the IBAME constitution.

www.mossbauer.org

The Mössbauer Community Website also provides information on upcoming conferences, listings of instrument and source suppliers, information about regional Mössbauer research, position openings, a helpful listing of books related to the Mössbauer effect, and links to active Mössbauer research labs.

MEDC also hosts the Mössbauer Effect Data Center Website, which provides Mössbauer researchers with pertinent and timely information.

www.medc.dicp.ac.cn

Included on the site are the most recently published issues of the *Mössbauer Spectroscopy Newsletter*, analysis and reference information for Mössbauer spectroscopists generated by the Center, and an E-Mail and Fax Directory of Mössbauer authors.

Also available to subscribers from the MEDC Website is our Web-Access Database, containing reference and data information from over 57,000 Mössbauer publications. The Database's Reference File includes all published Mössbauer papers back to and including Professor Mössbauer's original paper in 1958, regardless of language or country of origin. These articles have been reviewed for relevance to ensure every article has information of interest to Mössbauer researchers. In addition, we are trying to upgrade our database to a more functional one. An initial system which collecting comprehensive Mössbauer spectra had been designed. Some significan functions for this novel database such as spectra calibration, fitting of spectra using various models, are still under development.

Mössbauer Database

Publications – 57,116
Data Records – 111,655
Authors – 57,916
Journals – 3,485
Books – 1,521

Staff

The Mössbauer Effect Data Center (MEDC) operates from Dalian Institute of Chemical Physics. Tao Zhang (Director), Junhu Wang (Secretary General), Changzi Jin, Xin Liu (Research Associate) and Ya Ma (Editorial Assistant). Frank Berry and John Stevens were invited as Honorary Director.

Analysis

MEDC performs research and analysis in the area of Mössbauer spectroscopy. Results are published in various forms, including reference sheets setting forth selected properties of Mössbauer isotopes, a Mössbauer Periodic Table, and Mössbauer Handbooks, which are compiled for specific topics, such as minerals, biological studies, catalysts, or superconductors. Handbooks can be specially compiled on almost any topic.

International Sponsors

MEDC is directly financially supported by the international scientific community. We gratefully acknowledge the Institutional Sponsors, Institutional Affiliates, and Individual Affiliates who sustain the Center and support our service to the Mössbauer Community.

List of Part of Institutional Sponsors:

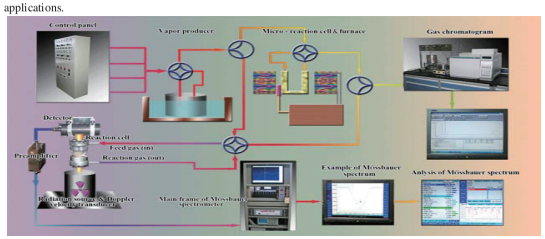
Centro Brasileiro de Pesquisas Físicas
Eötvös Loránd University
European Synchrotron Radiation Facility
Instituto de Quimica-Fisica "Rocasolano"
ADFC
Kookmin University
Sultan Qaboos University
Kyoto University
University of Montpellier II
University of New South Wales at ADFC
Uppsala Universitet

Research

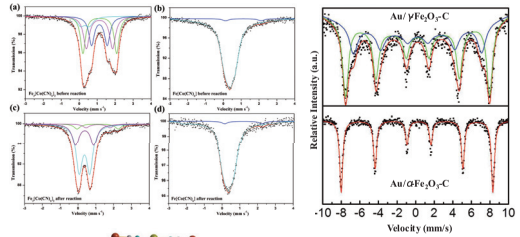
The scientific researches in MEDC mainly include: 1. Mössbauer applications in chemistry & catalysis; 2. Development & characterization of the novel catalytic nano-materials & catalytic reactions. In MEDC, currently, the Mössbauer technique is mainly applied for: 1. Identification of catalyst components in terms of active phase or active sites and search for correlations between these components and one or more of the catalytic properties; 2. Investigations of catalysts under working conditions and analysis of activation or deactivation processes. We also have a dream that the technique can be applied to Chinese spaceflight exploration in the near future like MIMOS II.

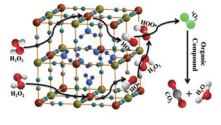
Current Favorite Research Topics

1. In situ Mössbauer combined with other spectroscopic studies (such as XAFS and so on) on the structural properties and mechanism of iron and/or tin containing materials;
2. Development and characterization of apatite-based nano-composite functional materials, especially application for catalysis and biomedicine.
3. Design and construction of iron and/or tin containing nano-composites and their characterizations and applications.



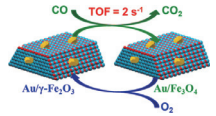
Schematically Showing the In situ Catalysis Mössbauer Characterization





Excellent Photo-Fento Catalysts of Fe-Co Prussian Blue Analogues and Their Reaction Mechanism Study

X. N. Li, et al. ***Appl. Catal. B***. 179, 196 (2015).



Highly Activity of Au/γFe_2O_3 for CO Oxidation: Effect of Support Crystal Phase in Catalyst Design

K. F. Zhao, et al. ***ACS Catal.*** 5, 3528(2015).