

#### AWARDS

There are awards for best contributed paper (oral and poster) presentation.

#### REACHING MUNNAR

The nearest Airport to Munnar is at Cochin. The nearest railway station to Munnar is Aluva / Ernakulam at Cochin. Munnar is connected by frequent bus service from/to Aluva / Ernakulam / Cochin and most of the towns in Kerala. It can also be reached by road from Madurai (6 hours) and Coimbatore (6hours) which are located in the state of Tamil Nadu.

#### ABOUT MUNNAR

Munnar, one of the most beautiful hillstations in India, is situated 135 KM east of Cochin. This is the highest hill station in the breathtakingly scenic and prosperous state of Kerala, hailed as, "God's Own Country". Informally Kerala is rated in the top three tourist destinations in the world by the World Travel & Tourism Council and featured in National Geographic Traveler's "50 greatest places of a lifetime". Munnar considered as the green paradise on earth by many travelers is tranquil, serene and famous for its lush green surroundings, lakes, reservoirs, water falls, forests and tea estates. The quiet environs of Munnar attract visitors to relax in the lap of mother nature. The atmosphere is fragrant with the flavor of tea and cardamom. Tea estates are situated mostly on the inner slopes of an elevated basin like plateau. Some of the tea plantations at an elevation of 2135 metres, are the highest in the world. The enchanting high range of lakes and streams, the low flying clouds, and the mist filled valleys cast spell which lingers long in one's memory. To know more about Munnar kindly log on to [www.ktdc.com](http://www.ktdc.com) or [www.munnarguide.com](http://www.munnarguide.com)

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# National Conference on CRITICAL AND STRATEGIC MATERIALS FOR ADVANCED TECHNOLOGIES



**CSMAT-2017**

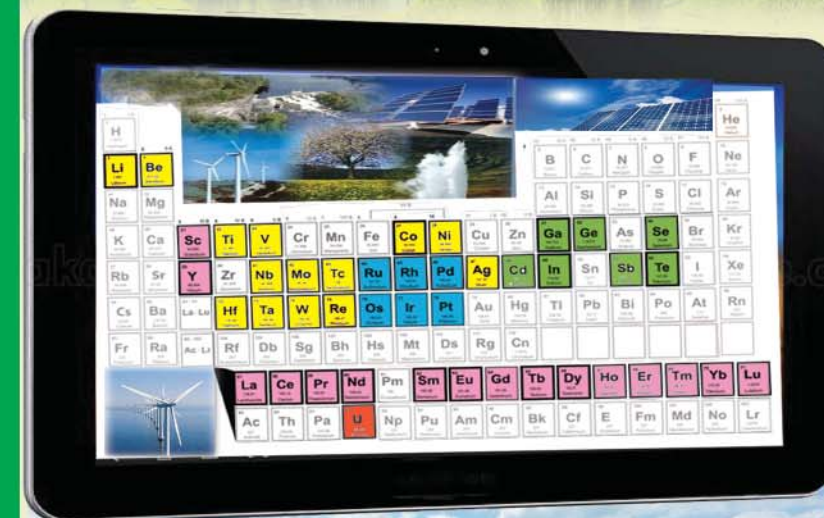


Organized by

**Rare Earth Association of India (REAI)**

and

**Indian Society of Analytical Scientists-  
Kerala Chapter (ISASK)**



Venue

**Munnar, Kerala State, India**

**March 9-11, 2017**

## ABOUT REAI

The Rare Earth Association of India established in 1998 is devoted to facilitate the progress of Science, Technology and Applications of Rare Earths in India. It also aims at commercialization of these materials and technologies critical to the development of India. REAI is a premier Association of Scientists, Technologists and Academic partners formed with the objective of:- a) promoting research, development and application of science and technology of rare earths and related materials b) exchanging, promoting, communicating and disseminating information concerning rare earths and related materials c) holding meetings for the presentation and discussion of scientific and technical papers on rare earths and related materials and organizing conferences seminars, symposia, workshops, etc. and d) publishing technical journals, newsletter, books, etc. on rare earths and related materials.

## ISAS KERALA CHAPTER

The Indian Society of Analytical Scientists (ISAS) established in 1983 is devoted to dissemination of scientific information in the area of analytical chemistry. It is a premier professional society facilitating cross fertilization of ideas, sharing of experiences and forging links between analytical scientists, academics and industry in India. The Kerala Chapter of ISAS is one of the most vibrant chapters of ISAS.

## SCOPE AND STRUCTURE OF THE CONFERENCE

Critical and strategic materials are fundamental components of technologies and everyday items ranging from cell phones, computers, medical equipment, renewable energy products, nuclear energy, high-tech military equipment, building materials, and common household products. The timely and environmentally responsible development of our Nation's supplies of strategic and critical minerals will create numerous job opportunities, boost and provide security to our economy. Without critical mineral ingredients, entire sectors of our economy, from manufacturing to high-tech to national defence to medical care, are put at risk. Scientists and technologists in our country are striving to efficiently develop our Nation's strategic and critical minerals, such as rare earth elements, that are vital to job creation, economic competitiveness, technological advancement, environmental protection, energy and national security. Currently, India is almost totally reliant on foreign countries for our critical and strategic minerals that are vital components to our manufacturing sector. One of the most important development initiatives launched by our Prime Minister Shri Narendra Modi for the development of our country is "Make in India" movement. A shortage of critical and strategic materials for the defence and high technology sectors will severely limit the impact of this campaign. It is important to understand that with regard to critical materials and essential minerals, planning and optimum utilization are vital. India has learnt the hard way that dependence on other countries – especially other competing economic and military powers – should be minimal with respect to strategic materials required in the energy, aerospace, nuclear power and in defence sectors. In addition, there is a constant need to monitor trends in progress in areas such as semiconductors, silicon technology, production of microcircuits, thin films, nanotechnology, and so on. Our government and several organizations and companies have invested billions in research to promote technological innovation in the value chain of raw materials through a wide range of initiatives such as new concepts and technologies for exploration efficient in terms of costs and identifying alternatives for critical raw materials even as research will help to improve processing and waste management technology to make mining and recovering critical and strategic materials more socially and environmentally acceptable. Based on data available, the following elements are considered critical and strategic for our country. They are **rare earths, platinum group metals, antimony, beryllium, cadmium, cobalt, gallium, germanium, hafnium, indium, lithium, molybdenum, nickel, niobium, selenium, silver, rhenium, tantalum, tellurium, titanium, tungsten, uranium and vanadium**. In this conference it is proposed to discuss in detail resources, mining, extraction, separation, characterization, optimum utilization, green technologies and emerging applications of the above materials. Attempts will be made to analyse the status of these critical/strategic materials in the Indian context and to study their availability, requirement and utilization. Efforts will be also made to identify the deficiencies and discover the dependence on other countries and for understanding the possible requirements of few major strategic sectors of technologies in respect of critical/strategic materials.

This conference, CSMAT 2017 is designed to bring together leading experts from universities, industry, R & D laboratories and government agencies, thus providing a unique opportunity for communication and collaboration essential to propel a multi-disciplinary dialogue on innovative and sustainable solutions in the field of critical and strategic materials. This cutting-edge national conference will feature plenary, keynote and invited talks, thematically focused technical sessions and poster presentations enabling the delegates to network and exchange ideas with their professional peers and acclaimed experts.

## CONFERENCE DATE

March 9-11, 2017

## VENUE

The conference will be held at Hotel Tea County, Munnar, Kerala State

## LANGUAGE

The official language of the conference is English

## TOPICS

- \*Strategies for critical and strategic materials in India
- \*Tracking of Critical and strategic elements
- \*Domestic and global geologic assessment of critical materials
- \*Supply and Demand
- \*Production /Processing Technology/Extraction/Separation
- \*High purity materials
- \*Characterization Techniques
- \*New/emerging technologies associated with critical and strategic materials
- \*Life-cycle analysis for new energy technologies
- \*Recovery/Recycling/Reuse
- \*Reduction of use/substitution
- \*Environmental Issues
- \*End Use/Applications in :

● Energy, Energy Storage and Green Energy ● Nanomaterials, Nanocomposites, Nanoporous materials and Devices ● Novel Functional materials. ● Optoelectronics ● Nuclear Energy ● Defence ● Fuel Cells ● Hydrogen storage ● Photovoltaics ● Phosphors for LED applications, Scintillators, Displays ● OLEDs ● Rechargeable batteries ● Catalysis ● Magnets

## CALL FOR PAPERS

Keynote, Plenary and Invited Talks by experts in the respective fields, and presentation of contributory papers by scientists/engineers/academicians/professionals/research scholars across India will form the main program of the conference. Those desirous of presenting papers in the conference are requested to submit one page abstract of their paper along with the completed registration form. Extended abstract of the paper may kindly be sent to the convener by e-mail to [csmat2017@gmail.com](mailto:csmat2017@gmail.com) / [reaindia2011@gmail.com](mailto:reaindia2011@gmail.com) before 31st, December, 2016. Authors will be notified of acceptance of abstract by 15<sup>th</sup> January, 2017.

## ABSTRACT FORMAT

Authors wishing to present papers at the Conference are requested to submit an abstract of not more than 500 words. The abstract should be in English and conform to the following format: Title in Times New Roman 14, bold capital letters, centered; Author(s) Name(s) in Times New Roman 12, centered, presenting author's name underlined; affiliation and address (including e-mail) in Times New Roman 12, centered; Text in Times new Roman 12. Please give a margin of 3 cm on top and bottom and 2.5 cm on left and right side of each page. Figure caption should be given under the figure and table heading should be given on the table, both in Times New Roman 12. References in the text should be in square brackets and they should be listed at the end of the extended abstract in the ascending order, with initials and names of all authors, journal name (italic), Year, volume (bold in italic), page numbers. For example M. L. P. Reddy, V. Divya and Rani Pavithran, Dalton Trans., 2013, 42,15249. Books should be sighted as follows: K. Binnemans, Handbook on the Physics and Chemistry of Rare Earths, Elsevier, Amsterdam, 2005, vol. 35, pp. 107-272. An electronic version of the abstract should be e-mailed to the Convener, CSMAT 2017 before December 31st, 2016. E-mail: [csmat2017@gmail.com](mailto:csmat2017@gmail.com) / [reaindia2011@gmail.com](mailto:reaindia2011@gmail.com) All correspondence regarding paper submission should be sent to: Convener, Local organizing committee. Abstracts will be considered by a panel of referees for inclusion in the programme. Authors will be notified whether their abstract has been accepted or not before January 15th, 2017. Abstracts Book will be available to registered participants.

## REGISTRATION FEE

It is necessary that all participants including invited speakers should register for the conference. Registration will enable you to entitle for entry to conference sessions, exhibitions, tea/coffee breaks, conference lunch, dinner and conference kit. Spouses are eligible for entry to conference exhibitions, tea/coffee breaks, conference lunch and dinner. In addition to the scientific activities of the conference, site seeing tours may be arranged upon request. For more details please contact the information/travel desk at the conference venue. Registration fees are as below.

	Before February 15, 2017	After February,15,2017	Spot
Participants (Indian)	Rs. 4000	Rs. 4500	Rs. 5000
Participants(Foreign)	US\$ 500	US\$ 550	US\$ 600
Students	Rs. 1500		
REAI/ISAS Life Members	Rs 2000		
Accompanying Person(Indian)	Rs. 2000		
Accompanying Person(Foreign)	US\$ 250		

## PAYMENT OPTIONS

Foreign Delegates - Wire Transfer

Payment should be made through wire transfer by using the following details

Beneficiary Account No: 67146367193

Beneficiary Name: RARE EARTH ASSOCIATION OF INDIA

Bank Name: State Bank of Travancore, Kalamassery Main

Bank Address: Kalamassery P.O.683104, Ernakulam District, Kerala state, India

IFSC Code: SBTR0000145

Note: Participants must bear the fees their banks charge for the remittances out of their accounts

## INDIAN DELEGATES

1. State Bank of Travancore account holders may remit through 'TRANSFER of funds' from their account to the Meeting account (Account Name: REAI; No. 67146367193) at the Bank counter or through the 'third party transfer' of Online Transfer Facility.
2. Account holders of other national banks can make the payment through NEFT transfer. Account Name REAI; Account No.67146367193; Bank: State Bank of Travancore; Branch:Kalamassery Main, Kalamassery P.O,683104,Ernakulam District, Kerala State.IFSC Code: SBTR0000145
3. Demand Draft (DD) drawn in favor of "REAI", payable at Ernakulam. The DD should be sent to Convener – Local Organizing Committee
4. Credit Card: (THIS OPTION IS NOT AVAILABLE)

## REFUND AND CANCELLATION POLICY

For cancellations submitted by 15<sup>th</sup> February 2017, 50% of your conference registration fees will be refunded. Please note that refund will be made after deducting the processing fee charged by our bank. No refund of conference registration fee available for cancellations after 28<sup>th</sup> February 2017. No refunds will be made for No Shows. Cancellation request must be received in writing only via, E-mail: [reaindia2011@gmail.com](mailto:reaindia2011@gmail.com) / [csmat2017@gmail.com](mailto:csmat2017@gmail.com)

## IMPORTANT DATES

Abstract submission closes on : 31<sup>st</sup> DECEMBER 2016

Acceptance of abstracts : 15<sup>th</sup> JANUARY 2017

Early-bird registration ends on : 15<sup>th</sup> FEBRUARY 2017

## SOUVENIR

A souvenir consisting of abstracts of the scientific papers/posters, advertisements and general information will be published on the / occasion of the conference. The organizing committee requests all the well wishers / participants to render their fullest support by way of providing advertisements scientific inputs in the souvenir.

## ADVERTISEMENT CHARGES

Tariffs for advertisements in the Souvenir are given below:

Back cover	Rs. 50,000	Inside Covers	Rs. 25,000
Full page colour	Rs. 20,000	Full page (B&W)	Rs. 10,000

## SPONSORSHIPS

Sponsorships are solicited from well wishers for organizing the conference as per details given below:

## CATEGORY FEES FACILITIES

Platinum	Rs. 5 Lakhs	5 Free delegates,	1 full page colour advertisement & display of logo at the venue
Diamond	Rs. 3 Lakhs	4 Free delegates,	1 full page colour advertisement & display of logo at the venue
Gold	Rs. 2 Lakhs	3 Free delegates,	1 full page colour advertisement & display of logo at the venue
Silver	Rs. 1 Lakh	2 Free delegates,	1 full page colour advertisement & display of logo at the venue

## EXHIBITION

It has been decided to organize an exhibition of rare earth based products, magnets, instruments, machinery, books, etc., in connection with the conference. This will provide an excellent opportunity to display their products for industry and discuss with experts on the future business scope in the field of rare earth based materials and their application.

Size of the Exhibition Stall Charges 3 meter X 3 meter Rs 50,000/-

## ACCOMMODATION

Organizers have reserved limited number of rooms at hotels near the conference venue for the participants from abroad during the Conference period at special discount rates. Hotel assignment will be made on a first-come, first-served basis. Participants from India are requested to arrange accommodation at their own cost. Munnar has a wide choice of good hotels with a wide tariff range. Organizers can assist them to book accommodation on request and receipt of one day's rent as advance. For student-participants, budgeted accommodation can be provided upon request and the same will be confirmed only on receipt of the accommodation charges. Organizing committee can assist the participants to reserve their accommodation. They may contact the convener for assistance.