



دانشگاه طلیح فارس

3rd International
Biennial
Oil, Gas and
Petrochemical
Conference
OGPC | Bushehr, Iran
28-29 Dec. 2020

گزارش برگزاری
سومین کنفرانس بین‌المللی دوسالانه نفت، گاز و
پتروشیمی
OGPC2020

تنظیم کننده:

علی رنجبر

اسفند ماه ۱۳۹۹



BUSHEHR



دانشگاه طبع فارس

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۱- مشخصات کلی کنفرانس

عنوان: سومین کنفرانس بین‌المللی دوسالانه نفت، گاز و پتروشیمی

3rd International Biennial Oil, Gas and Petrochemical Conference (OGPC2020)

زمان کنفرانس و طریقه برگزاری:

۸-۹ دی ماه ۱۳۹۹ (۲۸-۲۹ دسامبر ۲۰۲۰)، به صورت مجازی

دانشکده مهندسی نفت، گاز و پتروشیمی-دانشگاه خلیج فارس-بوشهر

آدرس اینترنتی:

<https://ogpc2020.pgu.ac.ir/>

سازمان‌های برگزارکننده:

دانشگاه خلیج فارس

دانشگاه مطالعات نفت و انرژی هند (UPES)

معرفی کنفرانس:

کنفرانس دوسالانه نفت، گاز و پتروشیمی (OGPC2020) یک رویداد علمی بین‌المللی برای پیش‌پژوهش‌های علمی و یافته‌های صنعتی جدید در حوزه تکنولوژی‌های بالادستی و پایین دستی نفت، انرژی و محیط زیست است که سومین دوره آن توسط دانشگاه خلیج فارس و با همکاری دانشگاه مطالعات نفت و انرژی هند در ۸-۹ دی ماه ۱۳۹۹ به مدت دو روز به صورت مجازی برگزار گردید. از مهم‌ترین اهداف دوره‌های مختلف این کنفرانس فراهم آوردن آوری‌های نخبگان دانشگاهی و خبرگان صنعتی در حوزه انرژی و محیط زیست است که هدف آن ارتقا و عرضه تجارب ویژه صنعتی، پژوهش‌ها و اختراعات علمی، توسعه فناوری، پیشرفت پایدار و تبادل دانش می‌باشد.



رئیس کنفرانس: دکتر عبدالمجید مصلح، رئیس دانشگاه خلیج فارس بوشهر
دبیر علمی: دکتر رضا آذین، استاد دانشکده نفت، گاز و پتروشیمی، دانشگاه خلیج فارس
دبیر اجرایی: دکتر علی رنجبر، استادیار دانشکده نفت، گاز و پتروشیمی، دانشگاه خلیج فارس

۲- ضرورت برگزاری کنفرانس

استان بوشهر به دلیل موقعیت ویژه جغرافیایی، برخورداری از منابع سرشار نفت و گاز، استقرار تاسیسات گسترده بالادستی نفتی، پالایشگاه‌های متعدد گاز، پتروشیمی‌های متنوع، واحدهای پلیمری پایین‌دستی، پتانسیل مناسب انرژی خورشیدی و نیروگاه‌های بزرگ تولید برق به‌عنوان قلب و پایتخت انرژی جمهوری اسلامی ایران شناخته می‌شود. از سویی، آلودگی و معضلات فراوان زیست‌محیطی هوا، آب و خاک به دلیل تجمع واحدهای صنعتی در این پهنه جغرافیایی رخ داده‌است که مطالعه راهکارها و بررسی جوانب و ابعاد آن بر جامعه دانشگاهی بایسته است. از سوی دیگر اتلافات شدید انرژی در حوزه صنعتی استان بوشهر بر عدم بهره‌وری مناسب و مشکلات زیست‌محیطی دامن زده است. از آنجا که امروزه مقوله‌های مهندسی نفت (چه در حوزه‌های بالادستی و چه پایین دستی)، محیط زیست و انرژی بصورت مدیریت یک‌پارچه مورد بررسی و ارزیابی قرار می‌گیرند اهمیت برگزاری رویدادهای علمی در محورهای انرژی و محیط زیست دارای ضرورت می‌باشد.

۳- اهداف برگزاری کنفرانس

سومین کنفرانس بین‌المللی دوسالانه نفت، گاز و پتروشیمی در محورهای کلی فناوری‌های بالادستی و پایین دستی نفت، انرژی و محیط زیست به‌منظور نیل به اهداف زیر برگزار می‌گردد:

- ۱- پایش آخرین یافته‌ها و دستاوردهای علمی و صنعتی در حوزه فناوری‌های بالادستی و پایین دستی نفت، انرژی و محیط زیست
- ۲- گردهمایی نخبگان دانشگاهی و خبرگان صنعتی در حوزه فناوری‌های بالادستی و پایین دستی نفت، انرژی و محیط زیست با هدف تبادل دانش، ارتقا و عرضه تجارب ویژه صنعتی، پژوهش‌ها و اختراعات علمی



- ۳- برگزاری پنل‌های تخصصی با حضور خبرگان صنعتی و نخبگان دانشگاهی جهت بررسی تحلیلی معضلات و ارائه راهکار
- ۴- تقویت نگرش حفظ محیط زیست و توسعه پایدار
- ۵- توسعه تعاملات دانشگاه و صنعت
- ۶- تقویت شبکه متخصصان فناوری های بالادستی و پایین دستی نفت، انرژی و محیط زیست در پایتخت انرژی ایران
- ۷- تقویت ارتباط موثر دانشگاه خلیج فارس با دانشگاه‌ها و موسسات دارای تفاهم‌نامه در حوزه صنایع نفت، گاز و پتروشیمی
- ۸- تقویت ارتباطات دانشگاهی و شبکه سازی علمی با پژوهشگران دانشگاه‌های مختلف سراسر جهان از جمله کشورهای حاشیه خلیج فارس
- ۹- تقویت شبکه ارتباطات دانشگاهی و صنعتی با پژوهشگران و خبرگان ایرانی و فارغ‌التحصیلان دانشگاه خلیج فارس شاغل در دانشگاه‌های داخلی و خارجی و شرکت‌های معتبر بین‌المللی
- ۱۰- معرفی ظرفیت‌های استان بوشهر و دانشگاه خلیج فارس در حوزه توریسم اکو-صنعتی به دانشگاه‌های جهان

۴- شعار محوری کنفرانس



۵- محورهای کنفرانس

1) Upstream Technology

- (a) Petroleum Exploration Engineering
- (b) Petroleum Geology and Remote Sensing
- (c) Drilling Engineering
- (d) Reservoir Engineering
- (e) Production Engineering

2) Downstream Technology

- (a) Chemical Engineering Fundamentals
- (b) Biotechnology and Biochemical Engineering
- (c) Petrochemical Engineering
- (d) Polymer Physics and Processing
- (e) Polymerization Technologies
- (f) Oil Refinery
- (g) Reaction Engineering and Catalysis
- (h) Process Safety and Risk Management
- (i) Electrochemistry and Electrochemical Engineering

3) Energy

- (a) Energy/Exergy Analysis
- (b) Energy Optimization Analysis
- (c) Production, Transportation and Storage
- (d) Conventional and Unconventional Energy Sources
- (e) Energy Transition
- (f) moving towards Gas based and renewables

4) Environment

- (a) Impacts of Industries on the Environment
- (b) Carbon Reduction and Utilization
- (c) Waste Management
- (d) Life Cycle Assessment
- (e) Environmental Conservation and Preservation
- (f) Energy & Environment Management and Sustainability
- (g) Health, Safety and Environment
- (h) Corporate Social Responsibility



5) other

- (a) Managing the HR
- (b) Marketing
- (c) Finance
- (d) Operations
- (e) Logistics and Supply Chain in Oil and Gas organizations

۶- شرکت کنندگان و تراز مالی

مخاطبین:

دانشجویان، پژوهشگران، استادان، نخبگان دانشگاهی و خبرگان صنعتی در حوزه نفت، گاز و پتروشیمی با زمینه کاری مرتبط با انرژی و محیط زیست از دانشگاهها، موسسات تحقیقاتی و شرکتهای داخلی و خارجی کشورهای همکار:

پژوهشگران، دانشگاهیان و خبرگان صنعتی از دانشگاهها، موسسات پژوهشی و شرکتهای کشورهای جمهوری اسلامی ایران، اتریش، نروژ، قطر، سنگاپور، قزاقستان، کویت، عمان، کانادا، ایالات متحده آمریکا، انگلستان، هند، پاکستان و مالزی در کمیته علمی و صنعتی کنفرانس عضویت دارند.

شرکت کنندگان: ۱۷۱ نفر

تعداد سخنرانان کلیدی: ۱۵ نفر

هزینه برگزاری: ۸۷,۳۰۴,۳۴۰ ریال (کل هزینه کنفرانس)

محل تامین اعتبار: ثبت نام اشخاص، مانده حساب کنفرانس از دوره قبل.



ملاحظات	مبلغ (ریال)	جدول تراز مالی کنفرانس موارد
جزییات در جدول هزینه‌های کنفرانس	-۸۷.۳۰۴.۳۴۰	هزینه‌های کنفرانس (-)
جزییات در جدول درآمدهای کنفرانس	+۱۹۳.۲۱۱.۹۰۸	درآمدهای کنفرانس (+)
	+۱۰۵,۹۰۷,۵۶۸	جمع

جدول هزینه‌های کنفرانس

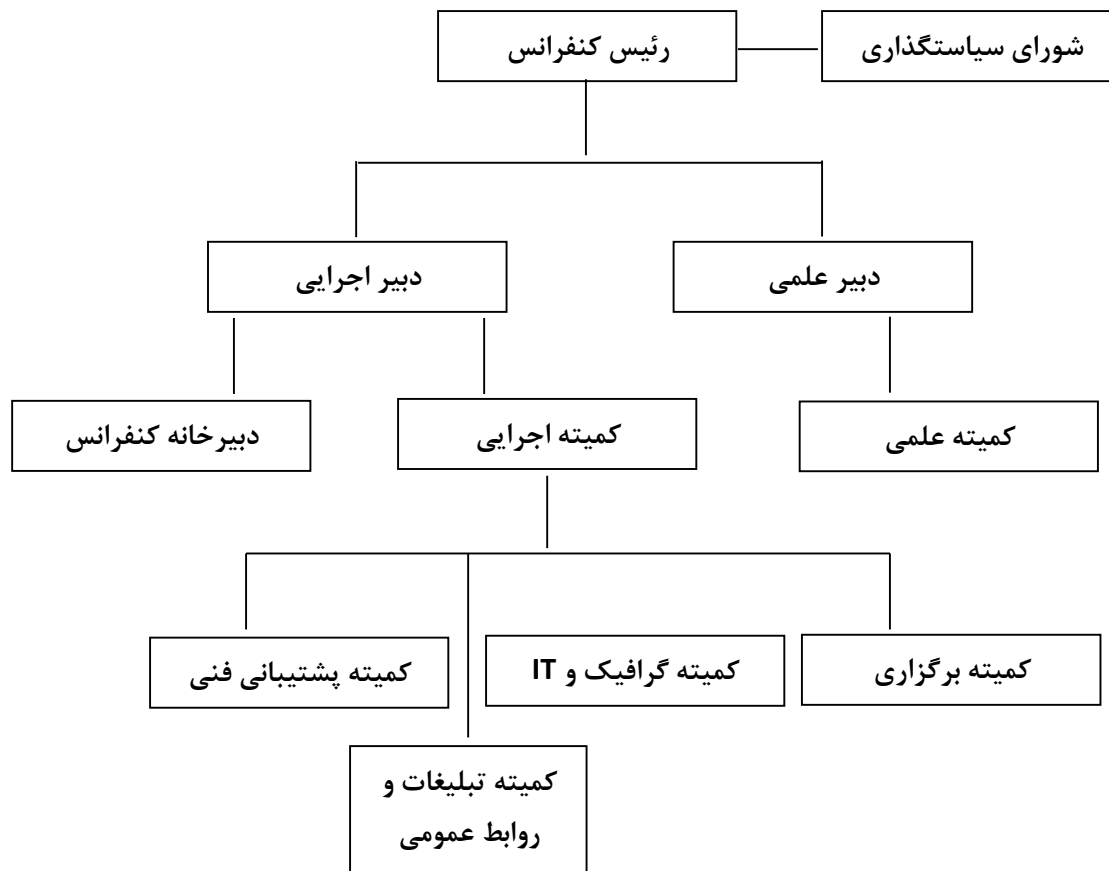
ردیف	شرح	مبلغ (ریال)	پرداخت کننده
۱	تهیه غذا عوامل اجرایی کنفرانس در دو روز برگزاری	۹,۹۹۵,۰۰۰	دانشکده نفت، گاز و پتروشیمی
۲	سامانه اسکای روم (skyroom) جهت برگزاری کنفرانس	۲۷,۲۵۰,۰۰۰	معاونت پژوهش و فناوری
۳	وبسایت کنفرانس	۲۵,۰۱۵,۵۰۰	معاونت پژوهش و فناوری
۴	چاپ بیلبورد تبلیغاتی (به سفارش روابط عمومی)	۲۵,۰۴۳,۸۴۰	در انتظار پرداخت
	جمع	۸۷,۳۰۴,۳۴۰	

جدول درآمدهای کنفرانس

ردیف	شرح	مبلغ (ریال)
۱	مانده حساب کنفرانس در دوره دوم (بر اساس تراز مالی) (نامه شماره ۳۵۹۶۲۸ مورخ ۱۳۹۷/۱۰/۲۹)	۴۷,۳۲۱,۹۰۸
۲	درآمد حاصل از شرکت در کنفرانس بدون ارائه مقاله	۱۱۳,۰۰۰,۰۰۰
۳	درآمد حاصل از شرکت در کنفرانس با ارائه مقاله	۴,۹۰۰,۰۰۰
۴	درآمد حاصل از شرکت در کارگاه‌های آموزشی	۲۷,۹۹۰,۰۰۰
	جمع	۱۹۳,۲۱۱,۹۰۸



۷- ساختار سازمانی و کمیته‌ها



رئیس کنفرانس: دکتر عبدالمجید مصلح، رئیس دانشگاه خلیج فارس

دبیر علمی: دکتر رضا آذین، استاد دانشکده نفت، گاز و پتروشیمی، دانشگاه خلیج فارس

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۷-۱- شورای سیاستگذاری

صفحه شورای سیاستگذاری در وبسایت کنفرانس



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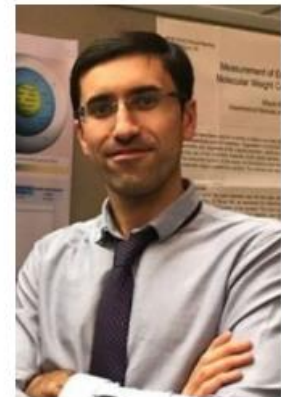
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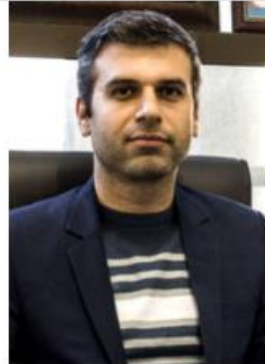


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دانشگاه طبرستان

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Austria



Prof. Markus Lehner

Professor
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Prof. Iraj Nabipour

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۳-۷- کمیته اجرایی

- ۱- دکتر علی رنجبر (دبیر اجرایی کنفرانس)
- ۲- مهندس آرش ابراهیمی (مسئول دبیرخانه)
- ۳- مهندس راضیه ملایی (پشتیبانی و مسئول برگزاری کارگاه های کنفرانس)
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- ۶- مهندس طه حسینی (مجری)
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۹- تاریخ‌های مهم کنفرانس

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۱۰- سخنرانان کلیدی کنفرانس

3rd International Biennial Conference on Oil, Gas and Petrochemical Engineering

Airborne Transmission of SARS-CoV-2

Category: Upstream Downstream Energy Environment



Keynote speaker
Mehdi Amouei Torkmahalleh
Department of Chemical and Materials Engineering, School of Engineering and Digital Science, Nazarbey University

The SARS-CoV-2 virus can be transmitted in several ways. The major route of virus transmission has been thought to be infection via person-to-person transmission when respiratory droplets containing the virus are discharged and then deposited on the face, hands, and eyes of an uninfected person. Growing evidence, however, suggests that SARS-CoV-2 can spread in aerosols exhaled by contagious individuals, including those with no symptoms. People with COVID-19, including those who are asymptomatic, release thousands of virus-laden aerosols and far fewer droplets when breathing, coughing, sneezing, and talking. These jets of respiratory plume contain droplets of saliva and particles, ranging in size from 0.2 μm to over 100 μm . While the size of the naked virus is irrelevant, the size of the carrier droplet/particles defines the transport and dynamics of the virus. Also, the filtration efficiency of the carrier particles by mask/respirator is influenced by their size. Given their smaller sizes, SARS-CoV-2 virus-containing aerosols may stay in the air and travel further than the 6-foot distance to infect surrounding unsuspecting people. Therefore, the current CDC recommendation of 6-foot social distancing may be critically inadequate for indoor environments, where aerosols can follow airflows and remain airborne for hours, accumulating over time and distances further than 6 feet. Of particular concern, however, outdoor events that were once thought to be safer than indoor events may also be super-spreaders of COVID-19 infections. For example, at least 23 people were thought to be infected at an outdoor event held at the US Whitehouse on September 26, 2020. Thus, the spread of SARS-CoV-2 may be more silent and potentially deadly than previously thought. There have been three main groups of scientists including pulmonologists, virologists, and epidemiologists who have been engaged in driving public knowledge and decision-makers, particularly in social media towards better understanding the spread of the SARS-CoV-2. However, an important group of scientists, aerosol scientists, remained uncited in this challenge. This talk reviews the current literature regarding the airborne transmission of SARS-CoV-2 and highlights the role of aerosol science in understanding the airborne transmission of SARS-CoV-2.


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Safe Distance: Theory and Practice

Category: Upstream Downstream Energy Environment



Keynote speaker
Prof. S. A. Abbasi
CSIR Emeritus Scientist, Pondicherry University

Accidents in chemical process industries are seldom one-incident events. More often than not, they begin with a primary incident, which then sets off other incidents, leading to a knock-on effect, much like an array of dominos toppling over when one of them is made to fall. Blast waves, heat radiation, and the missiles/projectiles that arise from bursting or shattering vessels and/or structures are among the most common escalators of accidents. One of the strategies to prevent this is to space the units so far apart that any escalation vector originating from one unit would be a spent force by the time it arrives at and interacts with another unit, thus reducing or eliminating the possibility of any damage/failure to it. But how far away should a hazardous unit be kept from another hazardous unit or structure to foreclose the possibility of secondary accidents? Ideally, all hazardous units should be put so far apart from each other that a mishap in one has zero probability of affecting the other. However, it is neither economical nor feasible to have this arrangement, given the interconnections between the units in terms of piping and related appurtenances, in addition to land area requirements. How to work out the best deal out of this situation has been a topic of research for many years, and continues to be so. Also, what is the situation on the ground? What are the practices actually followed by the industries in different parts of the world? What is the reason that despite the guidelines generated by the prevailing codes, standards, or models, knock-on accidents continue to occur? This presentation aims to discuss these issues.

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In-situ generated catalysts for oxidative dehydrogenation of ethane to ethylene

Category: Upstream Downstream Energy Environment



Keynote speaker
Dr. Sri Hari Kumar Annamareddy
Chemical and Petrochemical Engineering,
Department, University of Niwza,
Sultanate of Oman

Ethylene is one of the most produced organic chemicals in terms of volume. Ethylene is used in several petrochemical reactions such as polymerization, halogenation, hydrohalogenation, alkylation, hydration and oligomerization. Approximately 90% of ethylene produced goes into the manufacture of petrochemicals like ethyl benzene, styrene, ethylene oxide, ethylene dichloride, ethylene glycols, synthetic lubricants, surfactants, plasticizers, detergents, and a variety of polyethylene compounds. Polyethylenes of various densities account for more than half of world ethylene demand, out of which the films have wide applications in packaging, carrier bags and trash liners. Steam cracking is the most commonly practiced technique to produce ethylene. Conventional methods suffer with several drawbacks such as energy intensive process, catalysts deactivation and coke formation. Oxidative dehydrogenation could be a potential alternative to overcome the drawbacks of conventional process. Research groups made extensive studies over different varieties of catalysts and mixed oxide catalysts gained attention due to their effectiveness. A significant difference was seen in the performance of in-situ generated mixed oxides with that of normal mixed oxide catalysts. In-situ generated mixed oxide catalysts performed better compared to the other mixed oxides with similar atomic composition


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CO₂ Electrolyses on Doped SrTiO₃ Cathod in Solid Oxide Electrolysis Cell

Category: Upstream Downstream Energy Environment



Keynote speaker
Dr. Suddhasatwa Basu
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Global warming presents an ever-rising challenge to humans today, caused majorly by an unprecedented rise in the carbon dioxide levels in the atmosphere over the past decade. This study proposes a way to fix this problem by electroreduction of CO₂ at high temperature in to fuel to reduce of fossil fuel cell use
Solid oxide electrolyser have advantages of efficient electrochemical conversion of carbon dioxide into various hydrocarbons. At the cathode, CO₂ molecules are electrochemically reduced to CO and O²⁻ which transports through the electrolyte membrane to the anode and transforms to O₂ gas. Chemical adsorption of CO₂ on cathodes in presence of H₂ or H₂O at high temperatures leads to the electrochemical conversion of CO₂ into fuels in solid oxide electrolyser. Simultaneous CO₂ and steam electrolysis convert CO₂ to CO and generate a mixture of CO and H₂O. Direct electrolysis of CO₂ is still the most important challenge as the chemical adsorption of CO₂ on the surface of the ceramic cathode substantially restricts the adsorption, desorption and transfer in the cathode. Titanate-based materials are promising cathode materials as under reducing conditions, SrTiO₃ becomes an electronic conductor due to the reduction of Ti⁴⁺ to Ti³⁺. Doping with La/Y or Ni significantly increases the electronic conductivity. Electrochemical cell performance has been reported for Y, La and Ni-doped titanate materials with encouraging testing results, however, many of the titanate materials show negligible catalytic activity. In the current work, we present the electrochemical reduction of CO₂ using doped SrTiO₃ based cathode in solid oxide electrolysis cell (SOEC) at 800 °C. The current-voltage characteristics (between 2.5 V to 0 V) and impedance analyses at open circuit voltage (OCV) of La and Ca doped SrTiO₃ (LSCTA-) cathode have been carried out at 800 °C under varying ratio of CO₂/H₂. The current density at 2.5 V decreases from 124 mA cm⁻² for CO₂/H₂ ratio 50/50 to 60 mA cm⁻² for CO₂/H₂ ratio 90/10. The corresponding polarization resistance increases from 4.60 ohm cm² to 15.86 ohm cm² between CO₂/H₂ ratios 50/50 to 90/10. As, LSCTA- is not doped with any active metal catalyst the performance of SOEC was very moderate but Ni doped LSCTA- (LSCNITA-) cathode in SOEC exhibited 1000 mA cm⁻² at 50/50 CO₂/H₂ ratio

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Multidisciplinary Approach for Unconventional Shale Gas Exploitation and CO₂ Enhanced Recovery

Category: Upstream Downstream Energy Environment



Keynote speaker
Dr. Annapurna Boruah
University of Petroleum and Energy Studies

Continuous increasing of energy demand globally requires the surplus resources of energy. The oil and gas energy scenario have been revolutionized by the recent development and exploitation of unconventional hydrocarbon resources from organic-rich shales. The kerogen rich shales (oil shale) decomposes and releases liquid (shale oil) and gaseous (shale gas) products with increasing maturity. However, shale reservoirs are highly heterogenous and each reservoir needs unique treatment. Therefore, integrated geological, petrophysical and multiscale reservoir parameters assessment is essential for shale gas exploitation. Current study focusses on shale gas exploitation techniques, ranging from basin scale to micro - nano scale reservoir characterization, including well log techniques, XRD, SEM, TEM, mCT, etc. The nanometer-scaled pore systems of gas shale reservoirs are examined using scanning electron microscopy to understand the pore system of these rocks, the total porosity, pore-size distribution, organic geochemistry, mineralogy, and image analyses by were performed. A comparative study of US commercially shale gas producing basins and Indian prospective basins demonstrates the zones for future shale gas exploitation in India based on their geochemical, petrophysical and reservoir parameters. Quantitative characterization of nano-pore heterogeneity and anisotropy is of great importance for precise calculation of gas reservoir capacity and the optimization of gas wells layout. This presentation will also include CO₂ enhanced gas recovery technique in shales. Injection of CO₂ in shale can increase the recovery of shale gas in gas-depleted shale reservoir, which can turn gas-depleted shale into a sink of CO₂ in order to contribute in reduction of greenhouse gas emissions. As methane occurs in shale either as free gas in void space or as adsorbed gas on organic matter, CO₂ injection could push the free gas toward the production well and displace the adsorbed gas. This is due to a higher tendency CO₂ to be adsorbed compared to methane. A study from Permian shales of India, Damodar Basins suggest that the shale could adsorb more CO₂ than methane

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Advanced Membrane Materials and Technology for Produced Water Treatment

Category: Upstream Downstream Energy Environment



Keynote speaker
Prof. Ahmad Fauzi
Advanced Membrane Technology Research
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The global petrochemical industry has experienced stimulating volume growth for decades. Despite the importance of petrochemical industries in supplying various valuable products from its upstream and downstream operations, the industry has contributed one of the largest volume of waste stream associated with more than 80% of liquid waste and 95% in ageing oilfields. Produced water is a complex by-product of crude oil extraction. The constituents of produced water include organic and inorganic compounds that consist of dissolved and dispersed oils, grease, heavy metals and dissolved salts. Due to its hazardous impact and the need to meet the discharge standard of 10-15ppm, produced water needs to be treated to minimize the negative impacts towards environmental damage. On the other hand, the shrinking clean water resource has urged the need to extract fresh water from non-conventional sources. Produced water is a potential source of fresh water, particularly for oil-producing countries experiencing water stress issue. The engagement of membrane-based desalination technology in the field of produced water treatment brings about new possibility of water reclamation. The statistical analysis indicates produced water reclamation has attracted increasing attentions as reflected by the growing number of publications related to this topic. Various treatment technologies have been used for produced water treatment in oil and gas industries. Membrane technology serves as an attractive alternative technology as it works without the additional of chemicals, with a relatively low energy use and easy and well-arranged process conduction. The progresses made in membrane improvement include material selection and innovative membrane design and to render the membranes with enhanced properties and separation performance. In this keynote presentation, the recent development of novel membrane and membrane processes for produced water desalination are discussed. The state-of-the-art of produced water desalination using forward osmosis, reverse osmosis, membrane distillation and their hybrid system for produced water treatment and desalination is presented. The intrinsic issues of membrane technology, particularly fouling phenomena as the main challenge to reliable developing advanced membrane for PW desalination including organic fouling, inorganic scaling, colloidal fouling, and biofouling are highlighted. The important aspects in these processes such as membrane development and system development and optimization are presented. Finally, the presentation is wrapped up with the challenges and future outlooks in this field

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Direct Conversion of Natural Gas to Aromatics: Catalytic and Mechanistic Insights

Category: Upstream Downstream Energy Environment



Keynote speaker

Prof. Mohamad Ali Haider

Department of Chemical Engineering, Indian Institute of Technology Delhi, Hauz Khas, New Delhi, India. haider@iitd.ac.in

Direct conversion of methane to aromatics in non-oxidative conditions generally utilizes a bifunctional catalyst having active molybdenum species supported on zeolite (Mo/HZSM-5). In this reaction, the nature of the active site for methane activation on Mo is suggested to be a carbide (or an oxycarbide) and the catalyst is known to deactivate from carbon deposition over time due to the formation of polyaromatic hydrocarbons. Herein, density functional theory (DFT) calculations are utilized to study the catalytically active carbide (MoxCy) clusters in C-H bond activation and C-C coupling reaction to form C2 intermediates. A massively parallel cascade genetic algorithm (cGA) is applied to scan the potential energy surface (PES) for all possible low-energy structures (including the global minimum) of MoxCy. Catalytic activity of the global minimum and metastable clusters are accessed and compared for methane activation, highlighting the role of metastable clusters influencing the overall reaction rates. The evolution of the molybdenum carbide species from the precursor oxide and oxycarbide forms, dictating the anchoring of the carbide cluster on the zeolite support, is considered the key aspect in deciding the extent of coke formation on the catalyst. The mechanistic insights obtained from DFT calculations are thus providing a molecular level engineering approach, wherein the catalyst is rationally synthesized to obtain desired active sites anchored on the zeolite support, which are stable in providing high aromatic selectivity and overall reactivity. This is implemented in experiments at three stages; a) by altering the Mo precursors used in the synthesis of Mo/HZSM-5 catalyst, b) treating the zeolite support with the boric acid to alter support acidity and on c) changing the carburizing condition from pure methane to a mixture of hydrocarbon gases (mimicking the natural gas). In all three cases, the evolution and control of the active molybdenum carbide species, anchored on the zeolite support, is highlighted as a molecular level toolbox for obtaining desired reactivity and product selectivity, with a potential to achieve higher catalyst stability



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Digital Drilling for Oil and Gas

Category: Upstream Downstream Energy Environment



Keynote speaker

Dr. Sunil Kumar Khare

University of Petroleum and Energy Studies

Digital enabled drilling optimization is the need of hour for long-term sustainability of oil and gas industry, especially its offshore and deepwater operations, which are highly capital intensive and sensitive to international crude oil price. There are several technologies such as artificial intelligence and machine learning, whose implementation towards drilling optimization and automation is in advanced stage. Drilling industry is blessed to have large number of operational sensors on rigs, which generate drilling and related data in real time on 24 x7 basis. With the development of big data and cloud server technologies, there is scope of drilling optimization, enabled by insight and decision support algorithms running in real time on big data. The advances in RTOC technologies are key enablers of drilling automation and quality well construction. In future, we can look forward to drillers who have less physical strength, and are more tech and gadget saavy to operate a drill by wire rig. Successful implementation of digital technologies holds key to reduction in the cost of drilling and enhanced recovery of hydrocarbon from reservoir



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Comparison of process pathways for the production of green methanol

Category: Upstream Downstream Energy Environment



Keynote speaker

Prof. Markus Lehner
 Chair of Process Technology and Environmental Protection
 Montanuniversität Leoben, Austria

Methanol is suitable both as a chemical storage medium for fluctuating renewable energy and as an important platform chemical for carbon chemistry. Methanol can be obtained from biomass as well as from CO₂ with the utilization of renewable hydrogen from water electrolysis. A variety of different process paths are conceivable for methanol synthesis. A comparison of such process routes, which make annual production on a 100 kt scale appear possible in the medium term, shows that the routes differ significantly in terms of important process indicators. Process routes based on biomass can be made much more efficient by the additional inclusion of renewable hydrogen. In addition, blast furnace gas from the blast furnace process in a steel plant appears particularly attractive, not least because a number of other, more efficiency-enhancing synergies can be expected with the steel mill. An assessment of which process route is most advantageous in a specific application can only be carried out in individual case


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Get the Best out of Hydrocarbon Assets in a Challenging and Dynamic Landscape

Category: Upstream Downstream Energy Environment



Keynote speaker

Dr. Rahim Masoudi
 Chief Technical Officer, GTA & Custodian - Reservoir Engineering, Resource Development & Management, PETRONAS

Unavoidable uncertainties and volatility in the industry have resulted in significant continuous transformation in many oil & gas companies towards maximising the lifecycle value of the hydrocarbon assets. The need to take a proactive action in enhancing the business workflows is compounding to improve efficiencies by simplifying processes, deploying innovative collaboration models, undertaking efforts to drive down the cost as we become more cash conscious, resetting mindset towards value & objective driven, and rethinking the commercial and contractual strategies in developing and managing the hydrocarbon assets

This talk will touch upon some standards and process improvement at industry level (with show cases from Malaysia) and its key principles and value impacts, focusing mainly on Integrated Asset Development & Management (IADM) throughout field/asset lifecycle from exploration stage down to decommissioning and abandonment stage with focus on Field Development Projects. In addition, it will also share example of innovative solution of resources management towards successful development plan formulation and asset management, that serve as a platform for putting together various elements of ideas and concepts, best practices and lessons learnt, techno-commercial & data-driven initiatives, alternative industry standard approaches, and enabling technologies for IADM

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Digital Oil Field Need in the Current Area

Category: Upstream Downstream Energy Environment



Keynote speaker

Dr. Fatemeh Mehran
 Artificial Lift TS Regional Champion Asia Pacific

Digital Oil Field or intelligent Field, recently became one of the hot topics for oil and gas industry. Using technology to unlocks the full potential of available data, allowing the operators to digitally transform their business and get ready to take advantage of new technologies such as machine learning, cloud computing and artificial intelligence. In this talk, you will here about the recent case studies has been done in digitalization field from giant operators in Malaysia and Middle East

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Foam Based Fluid: Its Applications in Oil and Gas Technolog

Category: Upstream Downstream Energy Environment



Keynote speaker

Dr. Amit Saxena
 Rajiv Gandhi Institute of Petroleum Technology
 Department of Petroleum Engineering, Email: amitsaxenaism@gmail.com

The ever-increasing demand to augment the exploitation of hydrocarbon resources had led to many recent developments. One on the major development is techniques to use foam-based fluid for the exploitation of major conventional and unconventional resources. Foam has proven its worth a drilling fluid, fracturing fluid and an effective enhanced oil recovery fluid. Foam is a mixture of gas bubble trapped within a liquid continuum. The multiphase flow exhibits a high viscosity of the order of 150 mPa at very low densities. Also, it ensues a better solid carrying capability. The choice of liquid continuum (water or oil mixed with suitable surfactant and polymer) and the gaseous phase depends of the operation being targeted, available resources and geological conditions (permeability, water availability, clay content and temperature etc.). Foam is used as drilling fluid in shales, highly fractured and tight gas reservoirs. It mitigates the problem of formation damage whilst providing an efficient cutting transport capability. The minimal utilization of water for its production and negligible flowbacks to the surface during hydraulic fracturing has made foam a promising candidate for its use as fracturing fluid. However, its higher solid carrying capability or better proppant carrying capability adds to its usability as a fracturing fluid. The foam assisted enhanced oil recovery has shown an improved performance of the operation. Carbon dioxide-based foam improves the EOR process. Carbon dioxide gets dissolved in the oil whilst the oil components gets transferred into the carbon dioxide rich phase. This reduces the interfacial tension and improves the mobility of the oil in the targeted zone, resulting in an increased recovery of the oil

The proposed talk will focus on the most recent developments that used the foam as one of its used fluid. Also, the future prospective works will be proposed in this domain

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Improving the Reliability and Economy of Hydrate Blockage Prevention Techniques

Category: Upstream Downstream Energy Environment



Keynote speaker
Prof. Bahman Tohidi

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Common practice in the industry, for preventing hydrate blockage, is using various inhibitors or dehydration. Normally hydrate phase boundary is measured and/or predicted, then a safety margin of 3-5 °C is considered. Then, the worst operating condition is considered, and amount inhibitor is determined. Finally, some extra inhibitor is added for the inhibitor loss to hydrocarbon phase(s) and bad mixing. Normally, the dosage of inhibitor is not changed due to changes to ambient temperature and/or pressure and/or production of saline formation water. This has resulted in extra production costs and damage to environment and sometimes blockage(s). In this communication, we discuss about new technology and devices that can optimise inhibitor usage and detecting early signs of hydrate formation. These techniques have been used in several fields around the World with excellent results. Combined with IoT (Internet of Things), it can provide a cost effective and reliable hydrate blockage prevention technique


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Simulation of seismic wave propagation in a CO2 flooded reservoir

Category: Upstream Downstream Energy Environment



Keynote speaker
Dr. Nimisha Vedanti

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Seismic wave propagation in a porous media like hydrocarbon reservoir allows us to understand the response and interaction that occur between the elastic rock matrix and the fluid in the formation. Biot has described this interaction in his theory of poroelasticity, and hence Biot's formulations are commonly used to simulate seismic wave propagation in a porous media. The Biot's equations predict two types of compressional waves (fast P-wave and slow P-wave) and shear waves in the media. Various experiments demonstrated the existence of slow P-waves in porous media. We hereby simulate the propagation of seismic waves in a two-layered CO2 flooded reservoir model and demonstrate that at frequencies below 23 kHz, the slow P-wave is not really a wave, but a highly attenuated diffusion phenomenon. We further investigate the role of CO2 in describing the seismic attenuation happening in the reservoir when CO2 is replacing brine. Numerical simulations were performed on geological models representing pre and post- CO2 injection scenarios using diffusive viscous equations, and the anomalies related to CO2 plume are successfully modeled

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3rd International Biennial Conference on Oil, Gas and Petrochemical Engineering

Hydro-dynamics of CO₂ flow in unconventional hydrocarbon systems

Category: Upstream Downstream Energy Environment



Keynote speaker
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Access to clean and cheap energy is the bedrock for any country, and efforts are ongoing to explore the geological formations for natural resources in the form of coal, natural gas and oil. One of the greatest challenges of the 21st century includes discovering more sources of energy to drive sustained growth. Unconventional hydrocarbon reservoirs once assumed to be of limited use are now viewed as mainstream energy resources. Such reservoir development is complex with challenges on scientific, technological, environmental and social fronts. Unconventional energy sources such as shale gas, coalbed methane, gas hydrates etc. are estimated to power the world of future. However, burning fossil fuels comes with an inherent issue of CO₂ production. Capture Utilization and Storage (CCUS) has often been slated as the only viable technological solution to decarbonize the overall energy systems. Enhanced recovery of natural gas and oil partly offsets the costs of CO₂ capture and transport. The present work develops an understanding on gas storage capacity, gas flow through the reservoir medium and the integrity of the reservoir systems due to CO₂ storage. The low pressure gas adsorption methods were used to estimate the pore size distribution and surface area available for gas adsorption. It was found that pores in the range of micro, meso and macropores exist in the coal and shale samples. Further, pressure transient methods for fluid permeability in coal indicate a strong decline in coal permeability to supercritical CO₂ as compared to subcritical CO₂. Preliminary numerical modeling for Indian coals indicates high CO₂ storage capacity and nearly 40-45% additional coalbed methane recovery due to injected CO₂. The research was extended to understand the distribution of pores in coal and shale, using low pressure gas adsorption and scanning electron microscopy. The pores in the range from <1 micron to over 50 micron could be mapped and the pore size distribution and porous surface were determined. In depth understanding of the unconventional reservoir systems, help in understanding the potential for natural gas recovery as well as any possible CO₂ storage in these reservoirs

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۱۱- آمار مقالات و کشورهای مشارکت کننده

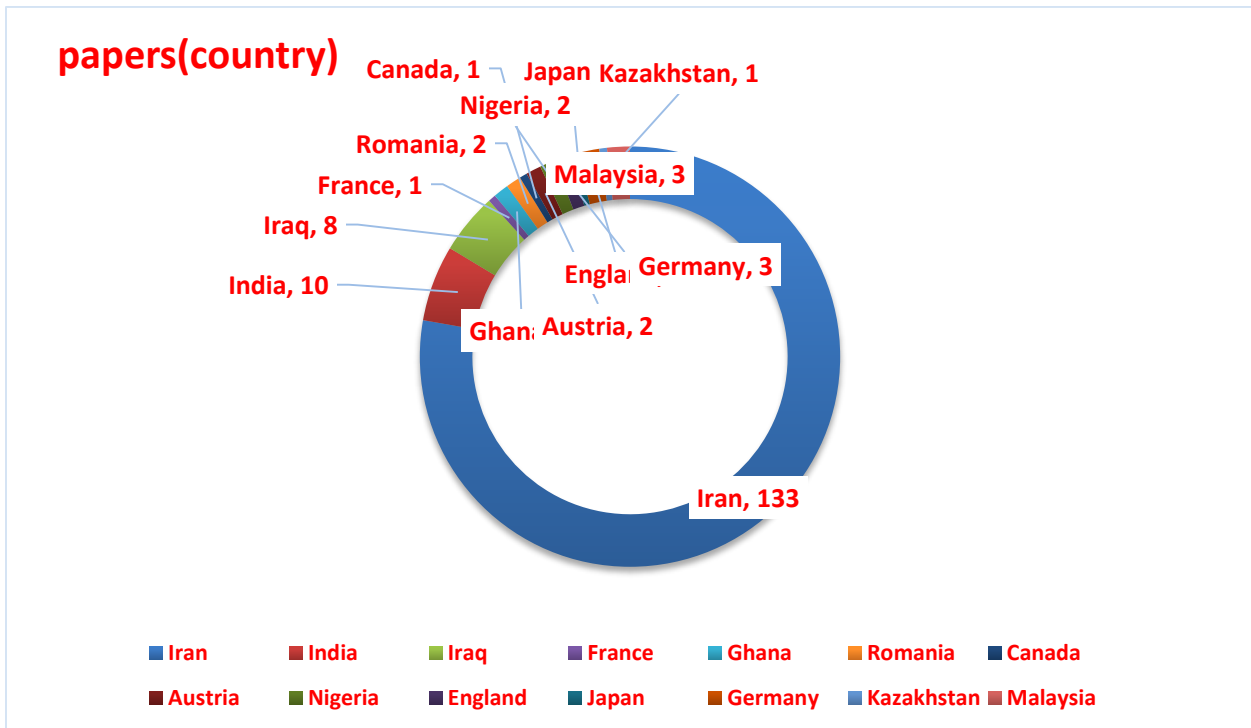
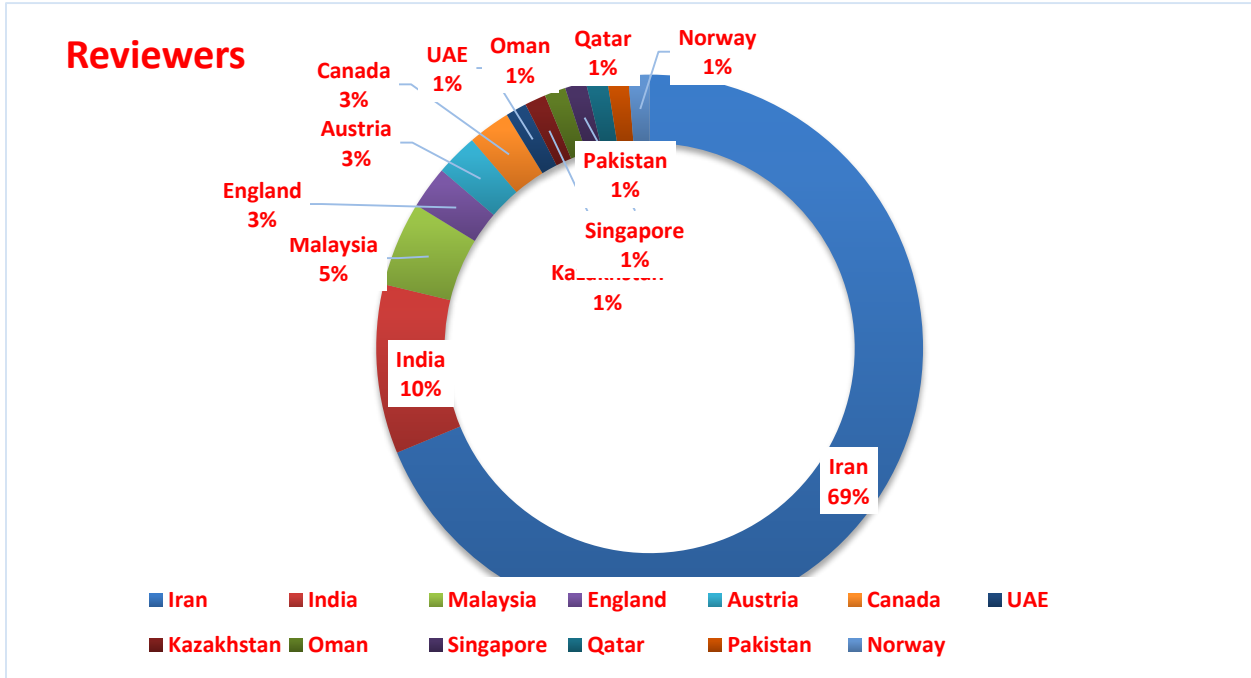
تعداد مقالات پذیرفته شده: ۱۷۱

تعداد کشورهای ارسال کننده مقاله: ۱۴

تعداد کشورهای مشارکت کننده در کمیته علمی: ۱۳

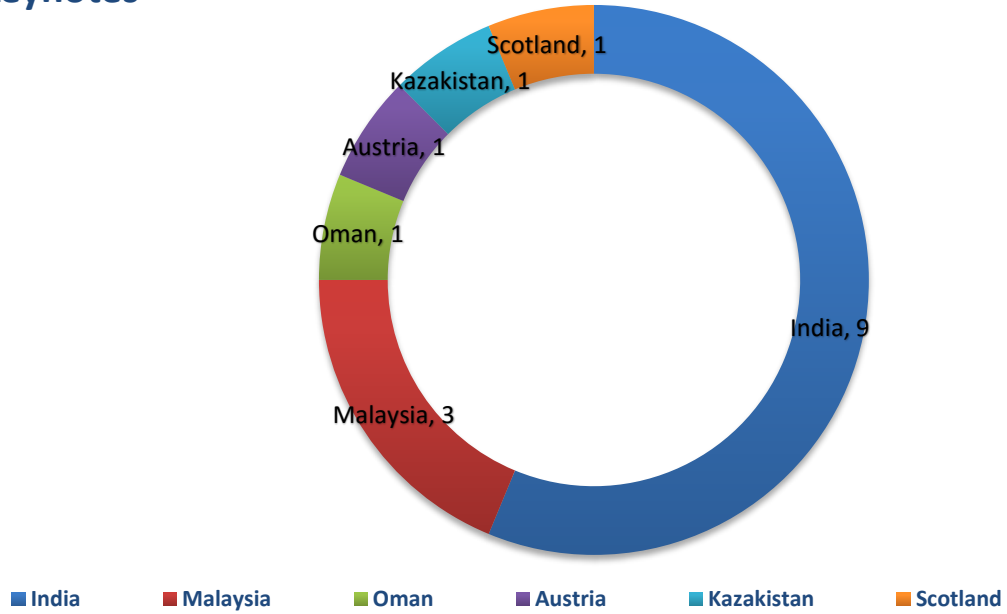
تعداد کشورهای مشارکت کننده در سخنران کلیدی: ۶







keynotes



۱۲-نمایه‌سازی مقالات در پایگاه‌ها و مجلات بین‌المللی

مقالات کنفرانس در پایگاه‌های استنادی جهان اسلام (ISC) و سیویلیکا نمایه شده و مقالات برگزیده در یک مجله بین‌المللی از ایران چاپ گردید.



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