



Catalysis and Organic Synthesis Research Laboratory

آزمایشگاه تحقیقاتی کاتالیزورها و سنتز آلی

معرفی

- ۱- تاریخ تاسیس: ۱۳۹۱
- ۲- مکان: دانشکده شیمی، طبقه سوم، شماره ۳۵۵
- ۳- فضای فیزیکی: ۹۱ مترمربع
- ۴- تجهیزات: اولتراسونیک، تقطیر چرخان، شیکر، نقطه ذوب و سایر لوازم آزمایشگاهی مرسوم شیمی (هود و بنچ و هیتر استیرر و مواد و شیشه آلات و ...)
- ۵- تلفن تماس (داخلی): (۲۷۵۰) ۰۲۱-۷۷۲۴۰۵۴۰-۵۰
- ۶- فکس: ۰۲۱-۷۳۰۲۱۵۸۴
- ۷- آدرس پستی: تهران- دانشگاه علم و صنعت ایران- دانشکده شیمی- طبقه سوم
- ۸- آدرس سایت اینترنتی: www.iust.ac.ir/rln/links/cosrl
- ۹- آدرس پست الکترونیک (مدیر آزمایشگاه): maleki@iust.ac.ir

۱- اهداف (کلی و جزئی):

الف) طراحی، سنتز و معرفی کاتالیزورها و طراحی فرآیندهای سنتزی نوین جهت دستیابی به دانش فنی و بومی سازی تولید در

مقیاس آزمایشگاهی و نیمه صنعتی

ب) کشف و بهینه سازی و توسعه روش‌های موجود در تولید نانوکاتالیزورها و نانوکامپوزیتها و سنتز ترکیبات دارویی و

بیولوژیکی

ج) ایجاد بستر مناسب برای اجرای پایان نامه های مصوب دانشجویان دکتری و کارشناسی ارشد تربیت متخصصین مورد

نیاز کشور جهت خدمت در صنایع و مراکز آموزشی

د) همکاری و ارتباط با صنایع نفت، گاز و پتروشیمی کشور در جهت رفع نیازهای آنها

ه) ارائه خدمات تجهیزات آزمایشگاهی و پژوهشی در برنامه ریزی بلندمدت

و) آماده سازی و تهیه امکانات لازم برای دریافت و اجرای پروژه های پژوهشی و صنعتی

ی) استفاده از روشهای نوین سنتزی برای طراحی پروژه های تحقیقاتی مشترک با سایر مراکز تحقیقاتی و دانشگاهی

۲- برنامه ها

کوتاه و میان مدت: تربیت نیروی انسانی (دانشجویان کارشناسی ارشد و دکتری) تهیه امکانات و مواد و دستگاه

بلندمدت: طراحی، تهیه و تجاری سازی کاتالیزورها و فرآیندهای سنتزی نوین با دستیابی به دانش فنی و بومی سازی، ثبت

اختراع های ملی و بین المللی از دستاوردهای تحقیقاتی آزمایشگاه و تبدیل شدن به آزمایشگاه معتبر در سطح کشور و جهان

اعضاء و همکاران

۱- مدیر آزمایشگاه:

نام و نام خانوادگی	مدرک تحصیلی و رتبه علمی	تخصص مربوطه
علی ملکی	دکتری شیمی آلی (دانشیار)	کاتالیست، نانوشیمی، کامپوزیت و سنتز مواد آلی

۲- همکاران آزمایشگاه:

ردیف	نام و نام خانوادگی	مدرک تحصیلی	تخصص مربوطه	سمت در آزمایشگاه
۱	علی ملکی	دکتری شیمی آلی	کاتالیست، نانوشیمی، کامپوزیت و سنتز مواد آلی	مدیر آزمایشگاه
۲	حسین غفوری	دکتری شیمی آلی	سنتز مواد آلی	همکار

دستاوردهای آزمایشگاه تحقیقاتی (سوابق علمی و تحقیقاتی اعضا)

دکتر علی ملکی:

http://www.iust.ac.ir/page.php?slct_pg_id=10930&sid=20&slc_lang=fa

<http://www.iust.ac.ir/find.php?item=20.10999.19782.en>

* زمینه های تحقیقاتی مورد علاقه

۱- کاتالیزورها و واکنشهای کاتالیزوری

Catalysts and catalytic reactions

۲- شیمی نانو (نانومواد مغناطیسی، کامپوزیتی، هسته/پوسته، پلیمری، هیبریدی)

Nanochemistry: magnetic, polymer, composite, hybrid, core/shell nanomaterials

۳- شیمی سبز (واکنشهای چندجزیی، سنتز ترکیبات آلی، هتروسیکلی، دارویی)

Green chemistry: multicomponent reactions, organic synthesis, heterocycles, pharmaceutical compounds

Synthesis of 2-hydroxy-1,4-naphthoquinone derivatives via a three-component reaction catalyzed by nanoporous MCM-41

Dyes and Pigments **2015**, *122*, 46-49

Design, preparation and characterization of urea-functionalized Fe₃O₄/SiO₂ magnetic nanocatalyst and application for the one-pot multicomponent synthesis of substituted imidazole derivatives

Catalysis Communications **2015**, *69*, 29-33

Synthesis and characterization of copper porphyrin into SBA-16 through “ship in a bottle” method: A catalyst for photo oxidation reaction under visible light

Solid State Sciences **2015**, *46*, 7-13

Graphene oxide-chitosan bionanocomposite: a highly efficient nanocatalyst for the one-pot three-component synthesis of trisubstituted imidazoles under solvent-free conditions

RSC Advances **2015**, *5*, 33177-33184

Synthesis of benzimidazolo[2,3-b]quinazolinone derivatives via a one-pot multicomponent reaction promoted by chitosan-based composite magnetic nanocatalyst

Chemistry Letters **2015**, *44*, 259-261

A review of syntheses of 1,5-disubstituted tetrazole derivatives

Molecular Diversity (Review) **2015**, *19*, 189-212

Preparation and characterization of a new surface modified dichromate/triethylamine/silica/iron oxide magnetic hybrid nanomaterial

Journal of the Iranian Chemical Society **2015**, *12*, 191-196

One-pot three-component synthesis of pyrido[2',1':2,3]imidazo[4,5-c]isoquinolines using Fe₃O₄@SiO₂-OSO₃H as an efficient heterogeneous nanocatalyst

RSC Advances **2014**, *4*, 64169-64173

Efficient synthesis of benzodiazepine derivatives via a one-pot three-component reaction accelerated by chitosan-supported superparamagnetic iron oxide nanocomposite

Tetrahedron Letters **2014**, *55*, 6931-6934

Synthesis and characterization of magnetic bromochromate hybrid nanomaterials with triphenylphosphine surface modified iron oxide nanoparticles and the catalytic application in multicomponent reactions

RSC Advances **2014**, *4*, 29765–29771

Facile synthesis of imidazo[1,2-*a*]pyridines *via* a one-pot three-component reaction under solvent-free mechanochemical ball-milling conditions

RSC Advances **2014**, *4*, 30229–30232

Fe₃O₄@cellulose composite nanocatalyst: Preparation, characterization and application in the synthesis of benzodiazepines

Catalysis Communications **2014**, *53*, 67–71

Highly efficient protection of alcohols as trityl ethers under solvent-free conditions and *recovery* catalyzed by reusable nanoporous MCM-41-SO₃H

Comptes Rendus Chimie **2014**, *17*, 994–1001

PTSA-Catalyzed Synthesis of Polysubstituted Quinolines *via* Friedlander Reaction under Ball-Milling Conditions at Room Temperature and Theoretical Study on the Mechanism using a DFT Method

Journal of Physical Organic Chemistry **2014**, *27*, 589–596

Synthesis, characterization and morphology of new magnetic fluorochromate hybrid nanomaterials with triethylamine surface modified iron oxide nanoparticles

Synthetic Metals **2014**, *194*, 11–18

Synthesis of imidazo[1,2-*a*]pyridines using Fe₃O₄@SiO₂ as an efficient nanomagnetic catalyst *via* a one-pot multicomponent reaction

Helvetica Chimica Acta **2014**, *97*, 587-593.

Synthesis of pyrido[2',1':2,3]imidazo[4,5-*c*]isoquinolines *via* a one-pot three-component reaction

Tetrahedron Letters **2014**, *55*, 1848-1850.

Chitosan-supported Fe₃O₄ nanoparticles: a magnetically recyclable heterogeneous nanocatalyst for

the syntheses of multifunctional benzimidazoles and benzodiazepines

RSC Advances **2014**, *4*, 9416-9423.

Preparation of magnetic fluorochromate hybrid nanomaterials with triphenylphosphine surface modified iron oxide nanoparticles and their characterization

Journal of Magnetism and Magnetic Materials **2014**, *355*, 300–305

Synthesis and characterization of magnetic dichromate hybrid nanomaterials with triphenylphosphine surface modified iron oxide nanoparticles ($\text{Fe}_3\text{O}_4@\text{SiO}_2@\text{PPh}_3@\text{Cr}_2\text{O}_7^{2-}$)

Solid State Sciences **2014**, *28*, 9-13

One-pot multicomponent synthesis of diazepine derivatives using terminal alkynes in the presence of silica-supported superparamagnetic iron oxide nanoparticles

Tetrahedron Letters **2013**, *54*, 2055–2059

Potassium phthalimide-N-oxyl: A novel, efficient and simple organocatalyst for the one-pot three-component synthesis of various 2-amino-4H-chromene derivatives in water

Tetrahedron **2013**, *69*, 1074-1085

Synthesis of a new class of tetronic acid derivatives: a one-pot three-component condensation reaction between isoquinoline or pyridine and dialkyl acetylenedicarboxylate with tetronic acid

Monatshefte für Chemie **2013**, *144*, 1051-1055

$\text{Fe}_3\text{O}_4/\text{SiO}_2$ nanoparticles: an efficient and magnetically recoverable nanocatalyst for the one-pot multicomponent synthesis of diazepines

Tetrahedron **2012**, *68*, 7827-7833

An efficient synthesis of 4H-chromene, 4H-pyran and oxepine derivatives via one-pot three-component tandem reactions

Tetrahedron Letters **2012**, *53*, 6977–6981

Recent progress of isocyanide-based multicomponent reactions in Iran

Molecular Diversity (Review), **2011**, *15*, 41–68

Electro-Organic Synthesis of 2-Amino-3-cyano-benzofuran Derivatives Using Hydroquinones and Malononitrile

Synthetic Communications, **2011**, *41*, 561–568

Novel isocyanide-based one-pot multicomponent syntheses of tetrahydrobenzo[*b*][1,4]oxazepine and malonamide derivatives

Journal of Combinatorial Chemistry, **2010**, *12*, 630–632

Diketene as an alternative substrate for a new Biginelli-like multicomponent reaction: one-pot synthesis of 5-carboxamide substituted 3,4-dihydropyrimidine-2(1H)ones

Tetrahedron, **2010**, *66*, 4040-4042

A new one-pot three-component synthesis of 2,4-diamino-5*H*-chromeno[2,3-*b*]pyridine-3-carbonitrile derivatives

Molecular Diversity, **2010**, *14*, 179-182

Novel syntheses of tetrahydrobenzodiazepines and dihydropyrazines via isocyanide-based multicomponent reactions of diamines

Journal of Combinatorial Chemistry, **2010**, *12*, 186–190

A four-component, one-pot synthesis of highly substituted 1,4-dihydro-1,8-naphthyridine-3-carboxamides

Tetrahedron Letters, **2009**, *50*, 6355–6357

Simmons–Smith reagent (Et₂Zn, CH₂I₂): an efficient reagent in organic synthesis

Synlett (Review), **2009**, *2009*, 1690-1691

A new one-pot four-component synthesis of disubstituted pyrido[2,3-*d*]pyrimidine-6-carboxamide derivatives

Journal of Combinatorial Chemistry, **2009**, *11*, 375-377

A novel class of extended pi-conjugated systems: one-pot synthesis of bis-3-aminoimidazo[1,2-*a*]pyridines, pyrimidines and pyrazines

Molecular Diversity, **2009**, *13*, 269-274

Synthesis of fully substituted pyrazolo[3,4-*b*]pyridine-5-carboxamide derivatives via a one-pot four-component reaction

Tetrahedron Letters, **2009**, *50*, 2911-2913

Cellulose sulfuric acid: An efficient biopolymer-based catalyst for the synthesis of oxazolines, imidazolines and thiazolines under solvent-free conditions

Applied Catalysis A: General, **2009**, *358*, 146-149

Tin(II) chloride dihydrate catalyzed Groebke condensation: An efficient protocol for the synthesis of 3-aminoimidazo[1,2-a]pyridines and pyrazines

Chinese Journal of Chemistry, **2009**, *27*, 369-371

A novel synthesis of highly substituted imidazo[1,5-a]pyrazine derivatives by 3-CR/2-CR sequence

Molecular Diversity, **2009**, *13*, 63-67

Xanthan sulfuric acid: A new and efficient bio-supported solid acid catalyst for the synthesis of α -amino nitriles by condensation of carbonyl compounds, amines, and trimethylsilylcyanide

Catalysis Communications, **2009**, *10*, 945-949

Tandem oxidation process using ceric ammonium nitrate: three-component synthesis of trisubstituted imidazoles under aerobic oxidation conditions

Synthetic Communications, **2009**, *39*, 102-110

A novel one-pot pseudo-five-component synthesis of 4,5,6,7-tetrahydro-1H-1,4-diazepine-5-carboxamide derivatives

Journal of Organic Chemistry, **2008**, *73*, 3925-3927

Novel isocyanide-based three-component synthesis of 3,4-dihydroquinoxalin-2-amine derivatives

Journal of Combinatorial Chemistry, **2008**, *10*, 323-326

Novel multicomponent one-pot synthesis of tetrahydro-1H-1,5-benzodiazepine-2-carboxamide derivatives

Journal of Combinatorial Chemistry, **2008**, *10*, 595-598

Novel isocyanide-based three-component one-pot synthesis of cyanophenylamino-acetamide derivatives

Journal of Combinatorial Chemistry, **2008**, *10*, 883-885

A facile electrochemical method for the synthesis of phenazine derivatives via an ECECC pathway

Tetrahedron Letters, **2008**, *49*, 5622-5624

Click reaction: Highly efficient synthesis of 2,3-dihydroquinazolin-4(1H)-ones

Synthetic Communications, **2008**, *38*, 3751-3759

Rapid synthesis of 3-aminoimidazo[1,2-a]pyridines and pyrazines

Synthetic Communications, **2008**, *38*, 1090-1095

Green and efficient synthesis of quinoxaline derivatives via ceric ammonium nitrate promoted and in situ aerobic oxidation of α -hydroxy ketones and α -keto oximes in aqueous media

Chemical & Pharmaceutical Bulletin, **2008**, *56*, 79-81

A novel isocyanide-based three-component reaction: synthesis of highly substituted 1,6-dihydropyrazine-2,3-dicarbonitrile derivatives

Journal of Organic Chemistry, **2007**, *72*, 6309-6311

Cellulose sulfuric acid as a bio-supported and recyclable solid acid catalyst for the one-pot three-component synthesis of α -amino nitriles

Applied Catalysis A: General, **2007**, *339*, 149-151

Microwave assisted synthesis of metal-free phthalocyanine and metallophthalocyanines

Dyes & Pigments, **2007**, *74*, 279-285.

Cellulose sulfuric acid catalyzed one-pot three-component synthesis of imidazoazines

Chemical & Pharmaceutical Bulletin, **2007**, *55*, 957-958

Ionic liquid promoted one-pot three-component reaction: Synthesis of 3-aminoimidazo[1,2-a]azines using trimethylsilyl cyanide

Monatshefte für Chemie, **2007**, *138*, 51-56

One-pot three-component synthesis of 3-aminoimidazo[1,2-a]pyridines and pyrazines in the presence of silica sulfuric acid

Monatshefte für Chemie, **2007**, *138*, 73-76

Solid acid promoted synthesis of quinoxaline derivatives at room temperature

Chinese Journal of Chemistry, **2007**, *25*, 818-821

Three-component, one-pot synthesis of 3,4-dihydropyrimidin-2-(1H)-ones catalyzed by bromodimethylsulfonium bromide

Chemical Papers, **2007**, *61*, 333-336

A fast and efficient method for the synthesis of 1,5-benzodiazepine derivatives under solvent-free conditions

Iranian Journal of Chemistry & Chemical Engineering, **2007**, *26*, 93-97

Ionic liquid promoted one-pot synthesis of 3-aminoimidazo[1,2-a]pyridines

Tetrahedron Letters, **2006**, *47*, 3031-3034 (Most Cited Paper in 2005-2008)

Rapid and efficient synthesis of metal-free phthalocyanine derivatives

Journal of Porphyrins & Phthalocyanines, **2006**, *10*, 1253-1258

Presentations

One Cellulose@Fe₂O₃-SO₃H: A novel magnetic composite nanomaterial for the synthesis of chromene derivatives

1st International Electronic Conference on Materials (ECM-1) Basel, Swiss, 26 May-10 June 2014.

Preparation of a novel biopolymer cellulose-based nanocomposite by coating of gamma-Fe₂O₃/Cu nanoparticles and catalytic application in chemical reactions

1st International Electronic Conference on Materials (ECM-1) Basel, Swiss, 26 May-10 June 2014.

Magnetic hybrid iron oxide-based composite nanocatalyst for the synthesis of polyhydroquinolines under solvent-free conditions at room temperature

1st International Electronic Conference on Materials (ECM-1) Basel, Swiss, 26 May-10 June 2014.

Synthesis of dihydroquinazolinone derivatives using Fe₃O₄@GO as an efficient and reusable composite nanocatalyst

1st International Electronic Conference on Materials (ECM-1) Basel, Swiss, 26 May-10 June 2014.

Rapid, one-pot synthesis of pyranopyrazole derivatives catalyzed by magnetic nanocomposite at room temperature

22nd Iranian Seminar of Organic Chemistry, Tabriz University, Iran, 19-21 August 2014.

Highly efficient one-pot synthesis of 1-carbamato-alkyl naphthols by magnetic nanocomposite supported on biopolymer

22nd Iranian Seminar of Organic Chemistry, Tabriz University, Iran, 19-21 August 2014.

A highly efficient synthesis of 2,4,5-trisubstituted imidazoles catalyzed by composite magnetic nanoparticle under mild reaction conditions

The 18th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-18), Spain, 2014.

Synthesis of 4*H*-pyran derivatives via a green one-pot multicomponent reaction catalyzed by CuFe₂O₄ magnetic nanoparticles as a reusable catalyst

The 18th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-18), Spain, 2014.

One-pot multicomponent synthesis of pyrano[2,3-*d*]pyrimidine derivatives catalyzed by supported magnetic nanoparticles

The 18th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-18), Spain, 2014.

The preparation of Fe₃O₄ nanoparticles encapsulated in mesoporous silica SBA-15 and its application for photodegradation of methylene blue under visible LED light irradiation

The 5th International Congress on Nanoscience & Nanotechnology (ICNN2014) Tehran, Iran, 22 – 24 October 2014.

Fe₃O₄/SBA-15: Preparation, characterization and application as a magnetically recoverable nanocatalyst for the one-pot three-component synthesis of quinazolinone derivatives

The 5th International Congress on Nanoscience & Nanotechnology (ICNN2014) Tehran, Iran, 22 – 24 October 2014.

One-pot Multicomponent Synthesis of 2-Amino-4*H*-chromene Derivatives Using UHP as a Mild and Highly Efficient Catalyst

21st Iranian Seminar of Organic Chemistry, Ilam University, Iran, 13-15 March 2014.

The Synthesis of Substituted Imidazoles By Using Functionalized Ferrate(III) Catalyst Under Green Chemistry Conditions

21st Iranian Seminar of Organic Chemistry, Ilam University, Iran, 13-15 March 2014.

Optimization of removing of lead ion by magnetic nanoparticles modified by chitosan from real samples

20th Analchem, Isfahan University of Technology, Iran, 25-27 February 2014.

UHP as a mild and efficient catalyst for the synthesis of substituted imidazoles via multicomponent condensation strategy

The 17th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-17), Spain, 2013.

A three-component one-pot procedure for the synthesis benzimidazolo-quinazolinone derivatives in the presence of chitosan-supported metal nanocomposite as a green and reusable catalyst

The 17th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-17), Spain, 2013.

Biopolymer-supported iron oxide nanocomposite: Preparation and catalytic application in the synthesis of benzodiazepine derivatives

The 17th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-17), Spain, 2013.

Preparation of biodegradable polymer-supported iron oxide nanocomposite and using in the selective synthesis of benzimidazoles

20th Iranian Seminar of Organic Chemistry, Bu-Ali Sina University, Hamedan, Iran, 3-5 July 2013.

Preparation of polymer-supported metal nanocomposite and using in the synthesis of diazepine derivatives

20th Iranian Seminar of Organic Chemistry, Bu-Ali Sina University, Hamedan, Iran, 3-5 July 2013.

On water synthesis of 2-amino-tetrahydrobenzo[b]pyrans catalyzed by a green, efficient and simple organocatalyst

The 16th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-16), Spain, 2012.

Synthesis of Copper Porphyrin into SBA-16 Walls as Catalyst for Oxidation Reaction

The 16th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-16), Spain,

2012.

Novel and efficient organocatalyst for the clean synthesis of 2-amino-4*H*-chromene

MCR2012, Kerman, Iran, 2012.

Efficient synthesis of highly functionalized pyrroles via a one-pot four-component reaction

MCR2012, Kerman, Iran, 2012.

Facile synthesis of imidazo[1,2-*a*]pyridines via a one-pot three-component reaction

MCR2012, Kerman, Iran, 2012.

Removal of Heavy Metal from Aqueous Solution by tetrakis(4-carboxyphenyl) Porphyrin-Functionalized SBA-15 Mesoporous Silica

3rd IIZC 2012, Arak, Iran, 2012.

Investigation on Photocatalytic Activity of Porphyrin into Mesoporous Silica as Biomimetic Heterogeneous Catalyst for Degradation of Azo Dyes

3rd IIZC 2012, Arak, Iran, 2012.

PTSA-catalyzed synthesis of quinolines via Friedlander reaction under ballmilling conditions

19th Iranian Seminar of Organic Chemistry, Rafsanjan, Iran, 2012.

Synthesis of 2-hydroxy-1,4-naphthoquinone derivatives via a three-component reaction catalyzed by MCM-41

19th Iranian Seminar of Organic Chemistry, Rafsanjan, Iran, 2012.

Facile synthesis of imidazo[1,2-*a*]pyridines via a one-pot three-component reaction accelerated by MCM-41 anchored sulfonic acid as a recoverable catalyst

19th Iranian Seminar of Organic Chemistry, Rafsanjan, Iran, 2012.

MCM-41-SO₃H-catalyzed tritylation of alcohols under solvent-free conditions

19th Iranian Seminar of Organic Chemistry, Rafsanjan, Iran, 2012.

Multicomponent Electrospinning of Bio/Synthetic Polymer Nanofibers

Envchem5, Ahvaz, Iran, 2011.

Solvent-Free Synthesis of Bis(indolyl)methanes Using Sulfonic Acid Functionalized MCM-41 as Efficient Heterogeneous Catalyst by Mechanically Ball-Milling

Envchem5, Ahvaz, Iran, 2011.

Nano-Ordered MCM-41-SO₃H as a Heterogeneous and Efficient Catalyst for Synthesis of Bis(indolyl)methanes Under Solvent-Free Conditions

The 15th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-15), Spain, 2011.

Facile and One-Pot Synthesis of α -Aminonitriles by Strecker Reaction Catalyzed by [BMIM][PINO] as a New Ionic Liquid

The 15th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-15), Spain, 2011.

An efficient synthesis of 2-amino-4H-chromenes and 2-amino-4H-pyrans derivatives via ultrasound assisted one-pot three-component reaction

The 15th International Electronic Conference on Synthetic Organic Chemistry (ECSOC-15), Spain, 2011.

Snapshot on the new inter- and intra-field researches of chemistry, medicine and engineering: Nanofibers of biopolymers

Iranian Chemistry Congress-ICC2011, Hamedan, Iran, 4-6 September, 2011.

Simultaneous reaction of ring opening of epoxide and pinacol-pinacolone rearrangement with sulfonic acid functionalized MCM-41

Iranian Chemistry Congress-ICC2011, Hamedan, Iran, 4-6 September, 2011.

One-pot Synthesis of bis(indolyl)methanes using sulfonic acid functionalized MCM-41 as efficient heterogeneous catalyst

Iranian Chemistry Congress-ICC2011, Hamedan, Iran, 4-6 September, 2011.

Cellulose Sulfuric Acid: A New Bio-Supported Solid Acid Catalyst in Organic Syntheses

International Catalysis Conference-ICC 2008, Tehran, Iran, 28-30 April, 2008.

Xanthan Sulfuric Acid: A New and Efficient Bio-supported Solid Acid Catalyst for the Synthesis of α -Amino Nitriles by Condensation of Carbonyl Compounds, Amines, and Trimethylsilylcyanide
International Catalysis Conference-ICC 2008, Tehran, Iran, 28-30 April, 2008.

Efficient Synthesis of Quinoxaline Derivatives Using Cobalt-Phthalocyanine via in Situ Oxidation of α -Hydroxy Ketones and α -Keto Oximes
International Catalysis Conference-ICC 2008, Tehran, Iran, 28-30 April, 2008.

Ceric Ammonium Nitrate-Mediated Efficient Three-Component Synthesis of Trisubstituted Imidazoles under Aerobic Oxidation Conditions
International Catalysis Conference-ICC 2008, Tehran, Iran, 28-30 April, 2008.

Design and Development of Novel Isocyanide-Based MCRs: Synthesis of Highly Substituted Imidazo[1,5-a]pyrazine Derivatives
15th Iranian Seminar of Organic Chemistry, Kermanshah, Iran, 27-29 August, 2008.

Novel Isocyanide-Based Three-Component One-Pot Synthesis of Cyanophenylamino-acetamide Derivatives
15th Iranian Seminar of Organic Chemistry, Kermanshah, Iran, 27-29 August, 2008.

Novel Isocyanide-Based Three-Component One-Pot Synthesis of Benzoxazines and Benzothiazines Derivatives
15th Iranian Seminar of Organic Chemistry, Kermanshah, Iran, 27-29 August, 2008.

Water-promoted One-pot Synthesis of Pyrido[2',1':2,3]imidazo[4,5-c]isoquinolin-5(6H)-ones
15th Iranian Seminar of Organic Chemistry, Kermanshah, Iran, 27-29 August, 2008.

A novel isocyanide-based three-component reaction: synthesis of highly substituted 1,6-dihydropyrazine-2,3-dicarbonitriles
8th Tetrahedron Symposium, Berlin, Germany, 27-29 June, 2007.

Microwave assisted synthesis of metal-free phthalocyanine and metallophthalocyanines
12th Iranian Seminar of Organic Chemistry, Ahwaz, Iran, 7-9 March, 2006.

Ionic liquid promoted one-pot multi-component reaction: synthesis of 3-aminoimidazo[1,2-a]pyridines, pyrazines and pyrimidines

13th Iranian Seminar of Organic Chemistry, Hamedan, Iran, 7-9 September, 2006.

Bromodimethylsulfonium bromide-catalyzed one-pot three-component synthesis of 3,4-dihydropyrimidin-2-(1H)-one derivatives

13th Iranian Seminar of Organic Chemistry, Hamedan, Iran, 7-9 September, 2006.

http://www.iust.ac.ir/page.php?slct_pg_id=11156&sid=20&slc_lang=fa

<http://www.iust.ac.ir/find.php?item=20.12324.25144.en>

زمینه های تحقیقاتی:

۱ - سنتز کاتالیزورها، متدولوژی (در راستای شیمی سبز) و سنتز ترکیبات آلی (ماکرومولکول های پورفیرینی-پلیمر...) .

۲- بررسی واکنش های اکسایشی و تخریب آلاینده ها (در راستای محیط زیست).

۳- نانو مواد (سنتز ، شناسایی و کاربرد نانو مواد: نانو کامپوزیت ها، نانوذرات هسته/پوسته، گرافن اکسید).

مقالات چاپ شده در مجلات:

1-Synthesis of 5, 10, 15, 20-tetrakis [4-(naphthalen-2-yloxy carbonyl) phenyl] porphyrin (TNBP) and its complexes with zinc and cobalt and an investigation of the photocatalytic. *RSC Advances*, 2015.

2-Nano magnetic sulfated zirconia ($\text{Fe}_3\text{O}_4@\text{ZrO}_2/\text{SO}_4^{2-}$): an efficient solid acid catalyst for the green synthesis of α -aminonitriles and imines. *New Journal of Chemistry*, 2015.

3-Aqueous formic acid: an efficient, inexpensive and environmentally friendly catalyst for diastereoselective synthesis of β -amino carbonyl derivatives. *Journal of the Iranian Chemical Society*, 2015.

4-Transition metal-free oxidation of benzylic alcohols to carbonyl compounds by hydrogen peroxide in the presence of acidic silica gel. *Current Chemistry Letters*, 2015.

5-Green Synthesis of N-pyrroles in water via Paal-Knorr reaction using $\text{ZrOCl}_2 \cdot 8\text{H}_2\text{O}$ as an efficient and eco-friendly catalyst, *Journal of Applied Chemical Research*, 2015.

6-Nano-ordered MCM-41- SO_3H an efficient catalyst for the synthesis of N-substituted pyrroles in water, *ScientiaIranica*, 2015.

7-Aqueous formic acid: an efficient, inexpensive and environmentally friendly organocatalyst for three-component Strecker synthesis of α -aminonitriles and imines with excellent. *RSC Advances*, **2014**.

8-Fast and green synthesis of biologically important quinoxalines with high yields in water. *Current chemistry letters*, **2014**.

9-facile solvent-free one-pot three-component method for the synthesis of 2-amino-4H-pyrans and tetrahydro-4H-chromenes at ambient temperature, *Monatsh fur Chem* , **2013**.

10-One-pot reductive amination of aldehydes by the dihydropyridine in water. *ScientiaIranica*, **2012**.

11- Catalyst-free synthesis of dihydropyridine from barbituric acid in water, *Research on Chemical Intermediates* , **2012**.

12-Deep eutectic solvent promoted highly efficient synthesis of N, N'-diarylamidines and formamides *Comptes Rendus Chimie* , **2012**.

13-Natural deep eutectic salt promoted regioselective reduction of epoxides and carbonyl compounds, *RSC Advances* , **2012**.

14-Toward a practical and waste-free synthesis of thioureas in water, *Molecular Diversity* , **2011**.

15-LiOH-catalyzed simple ring opening of epoxides under solvent-free conditions, *Phosphorus, Sulfur and Silicon and the Related Elements* , **2010**.

16-Highly chemoselective reductive amination by one pot reaction of aldehydes, amines and dihydropyridine catalyzed by TMSCl, *Journal of the Iranian Chemical Society* , **2010**.

17-Prediction of relative solvent accessibility by support vector regression and best-first method 101, *EXCLI Journal* , **2010**.

18- Silicon tetrachloride catalyzed aza-michael addition of amines to conjugated alkenes under solvent-free conditions, *Synlett* , 2010.

19-A simple, economical, and catalyst-free oxidation of thiols to disulfides , *Journal of Sulfur Chemistry* , 2009.

20-A highly efficient, operationally simple and selective thia-Michael addition under solvent-free condition, *Green Chemistry Letters and Reviews* , 2009.

21-Iron-catalyzed inexpensive and practical synthesis of N-substituted pyrroles in water, *Synlett* , 2009.

22-Silica sulfuric acid as a reusable catalyst for efficient and simple silylation of hydroxyl groups using hexamethyldisilazane (HMDS), *Phosphorus, Sulfur and Silicon and the Related Elements* , 2007.

23-Simple and practical protocol for the silylation of phenol derivatives using reusable NaHSO₄ dispersed on silica gel under neutral conditions, *Phosphorus, Sulfur and Silicon and the Related Elements* , 2007.

24-N-Chlorosuccinimide: A simple and efficient reagent for the preparation of symmetrical disulfides, *Journal of Sulfur Chemistry* , 2006.

25-Room temperature catalytic aromatization of Hantzsch 1,4-dihydropyridines by sodium nitrite in the presence of acidic silica gel, *Monatshefte fur Chemie* , 2006.

26-Aromatization of Hantzsch 1,4-dihydropyridines by hydrogen peroxide in the presence of cobalt(II) acetate, *Monatshefte fur Chemie* , 2003.

1-Synthesis and Characterization of Core-Shell $\text{Fe}_3\text{O}_4@\text{Collagen}$ Nanoparticle, and Application as Catalyst in Green Synthesis of Benzimidazoles and Benzothiazoles" The 18th International Electronic Conference on Synthetic Organic Chemistry, 1 - 30 November **2014**.

2- $\text{Fe}_3\text{O}_4@\text{ZrO}_2/\text{SO}_4^{2-}$ as a Nano Magnetic Solid Acid Catalyst for one Pot Synthesis of Benzylamino Coumarin Derivatives" The 18th International Electronic Conference on Synthetic Organic Chemistry, 1 - 30 November **2014**.

3-Nano Magnetic Sulfated Zirconia ($\text{Fe}_3\text{O}_4@\text{ZrO}_2/\text{SO}_4^{2-}$) as a Solid Acid and Reusable Catalyst for the Protection of Hydroxyl Groups Under Solvent-Free Condition," The 18th International Electronic Conference on Synthetic Organic Chemistry, 31 October. **۲۰۱۴**

4-Synthesis, Characterization and Photocatalytic Activity of Co(III) 5,10,15,20-Tetrakis (Carboxyphenyl) Porphyrin-supported Chitosan" The 18th International Electronic Conference on Synthetic Organic Chemistry, 1 - 30 November **2014**.

5-Synthesis and Characterization of Tin(II) 5,10,15,20-Tetrakis (4-Phenylbenzoate) Porphyrin and Tin(II) 5,10,15,20-Tetrakis (4-[1,1'-Biphenyl]-4ylbenzoate)Porphyrin" The 18th International Electronic Conference on Synthetic Organic Chemistry, 1 - 30 November **2014**.

6-Synthesis and characterization of 5, 10, 15, 20-Tetrakis-(4-Tolyl) Porphyrin, its Tin complexes and application in the photodynamic degradation of Methylene blue" 16th Iranian Inorganic Chemistry Conference, Bu-Ali Sina University, Hamedan, Iran, 27-29 August **2014**.

7-Synthesis and characterization of 5, 10, 15, 20-Tetrakis-(4-CarboxyMethylPhenyl) Porphyrin and its application in the photodynamic degradation of Methylene blue" 16th Iranian Inorganic Chemistry Conference, Bu-Ali Sina University, Hamedan, Iran, 27-29 August **2014**.

8- Metaloporphyrin functionalized TiO₂-graphene composite with excellent visible-light photocatalytic activity, 5th International Congress on Nanoscience & Nanotechnology (ICNN2014), 22-24 October **2014**.

9- TMSCl ;Highly efficient and simple organ catalyst for the fast and clean synthesis of bis(indolyl)methanes At room temperature. [21st Iranian Seminar of Organic Chemistry, Ilam University, Iran, 13-15 March.[۲۰۱۴

10- Fe₃O₄@ZrO₂/SO₄²⁻ Nanocatalyst magnetic solid super acide for the synthesis of β- amino Ketones in Mannich reaction. [21st Iranian Seminar of Organic Chemistry, Ilam University, Iran, 13-15 March **2014**].

11- Fe₃O₄@ZrO₂/SO₄²⁻ Nanocatalyst magnetic solid super acide: An efficient and recoverable solid acid catalyst for three component strecker reaction. [21st Iranian Seminar of Organic Chemistry, Ilam University, Iran, 13-15 March **2014**].

12- Fromic acid (organ catalyst): an efficient, inexpensive and environmentally friendly catalyst for three- component Strecker synthesis of α-aminonitriles with excellent yields. [21st Iranian Seminar of Organic Chemistry, Ilam University, Iran, 13-15 March **2014**].

13- Synthesis of 2-aryl quinazolin-4(3H)-ones, The 22th Iranian Seminar of Organic Chemistry, Tabriz University, Iran, 20 August **2014** .

14 - Synthesis of N-substituted pyrroles using ZrOCl₂·8H₂O as a highly efficient, ecofriendly and recyclable

catalyst in water .[20TH Iranian Seminar of Organic Chemistry, BU-Ali Sina University, Iran, 3-5 July **2013**].

15- Formic acide as an efficient catalyst for Mannich reaction, [National conference on multi-compounnent reaction, Kerman, **2012**].