

尚唯科技报告资源服务系统 用户手册

访问地址: <http://bg.sunwayinfo.com.cn/>

文档属性

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一、引言

为了帮助用户更好地了解和使用尚唯科技报告资源服务系统，在第一次使用时就能快速上手操作，特地编写此用户操作手册，使用户迅速了解本系统的各项功能及详细使用方法，解决在使用本系统时碰到的一系列疑问。

【读者对象】

使用本系统的所有用户。

【版权声明】

本用户手册是重庆尚唯信息技术有限公司为尚唯科技报告资源服务系统用户所提供的非技术文档，请勿用于其它用途。

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二、尚唯科技报告资源服务系统简介

《尚唯科技报告资源服务系统》主要收录国外科技报告，为用户提供科技报告这一特种文献的一站式检索查询、原文传递以及信息挖掘服务。

目前，本系统题录文摘收录量已超过 485 万个记录，能够获取的报告全文数量已超过 370 万篇，报告来源包括美国四大报告，以及美国国家科学院、日本宇宙航空研究开发机构、IBM 公司、兰德公司等众多国外著名机构的报告。

◆ **报告来源：**美国四大报告（航空航天局的 NASA 报告、能源部的 DE 报告、国防部的 AD 报告、商务部的 PB 报告），以及美国国家科学院、日本宇宙航空研究开发机构、荷兰国家学术研究与合作信息系统、IBM 公司、兰德公司、加州大学伯克利分校、哥伦比亚大学、UNT 数字图书馆、美国国家农业图书馆、世界银行组织、国际货币基金组织等机构。

◆ **收录量：**题录文摘收录量已超过 485 万个记录，能够获取的报告全文数量已超过 370 万篇，每年新增约 3-5 万份报告。

◆ **分类体系：**提供主题分类，将报告分为 32 个一级分类，向下分为 347 个二级分类，以及 707 个三级分类。

◆ **数据更新：**中心网站和镜像站季度更新。

◆ **标引字段：**报告名称、报告号、作者、主题分类、研究机构、赞助机构、关键词、发布年份、文献类型、合同编号、语言、页数、摘要等。

◆ **检索方式：**快速检索、高级检索、主题分类导航、研究机构导航、科研项目导航等。

三、尚唯科技报告资源服务系统安装要求

本检索软件基于 Windows 和 Linux 操作系统的 Web 版检索系统，是 TCP/IP 多线程服务器，以服务器、浏览器的访问方式响应客户端检索请求并返回检索结果。

该检索软件安装简单、使用方便。

■ **软件环境：**

操作系统: Linux、Windows

数据库: Mysql 5.7

■ **硬件环境：**

1、CPU: 4 核

2、内存: 16G 以上，系统 C 盘要求剩余空间 50G 以上

3、存储空间: 全套数据需 5T 空间左右，年数据增长约 600G。为保证数据安全性，建议用户使用专业的磁盘阵列做海量数据存储

四、检索与应用

1、进入系统

在浏览器地址栏中输入 <http://bg.sunwayinfo.com.cn/>，进入《尚唯科技报告资源服务系统》主界面。



2、首页页面介绍

(1) 登录区：位于界面的右上角。如图：

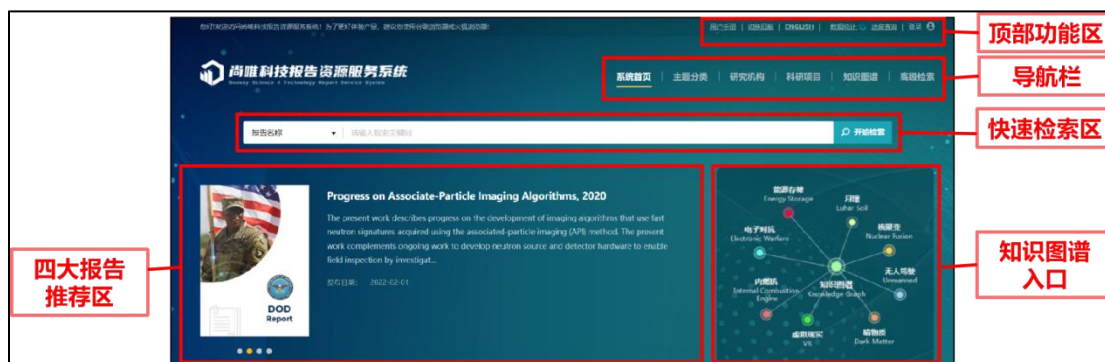


点击跳转后，进行用户登录后就可以使用本数据库了。

登录成功后，页面左上角会提示登录信息：



(2) 页面信息区：位于界面的中心区域包括顶部功能区、导航栏、快速检索区、四大报告推荐区、知识图谱入口等部分。



顶部功能区可以进行登录、用户手册下载、切换旧版、中英文转换、查看数据统计以及进度查询等操作。



其中，点击进度查询跳转至如下页面，输入预留的手机号或邮箱地址，即可查看报告查找进度。



(3) 其他信息区：主页面往下，分别有主题分类、编译报告、科技热词、科研项目和研究机构等信息展示区。

主题分类：左侧可切换查看不同主题的报告推荐，点击具体报告名进入报告详情页面，点击右上角的“More”跳转至指定主题的列表页，可在结果列表页选择所需报告，进行二次检索等。

主题分类 Subject Navigation

物理学

材料科学

生物及医学

能源与动力工程

燃料

工程学

化学

环境科学

地球科学

Integrated Computational Materials and Mechanical Modeling for Additive Manufacturing of Alloys with Graded Structure Used in Fossil Fuel Power...

摘要: Wire-arc additive manufacturing (WAAM) has demonstrated its unique capability of producing large-size alloy components with a significantly reduced fabrication time and enhanced geometry design freedom. In this project, the team has developed an ICME (Integrated Computational Materials Engineering) modeling framework...

作者: To, Albert Klecka, Michael A

Development of Enabling Technologies for Chemical Looping Combustion and Chemical Looping with Oxygen Uncoupling (Final Report)

摘要: This report summarizes results from the project, "Development of Enabling Technologies for Chemical Looping Combustion and Chemical Looping with Oxygen Uncoupling," which evaluated several aspects of dual fluidized bed chemical looping combustion and chemical looping with oxygen uncoupling (CLOU). The objective...

作者: Whitty, Kevin

IN-SITU PIPELINE COATINGS FOR METHANE EMISSIONS MITIGATION AND QUANTIFICATION FROM NATURAL GAS PIPELINES

摘要: Addressing the current health of the nation's existing 3 million miles of pipeline infrastructure is key to preventing further climate change. In 2020, natural gas production exceeded 34 trillion cubic feet (Tcf). Roughly 75% of natural gas consists of methane (CH₄), which is up to 25 times more powerful than carbon dioxide...

作者: Nakatsuka, Matthew

Scalable Nano-Scaffold SOFC Anode Architecture Enabling Direct Hydrocarbon Utilization

摘要: This project is based on WVU's pending patents, technology and aims to design and modify the internal surfaces of the Ni/YSZ anode from currently commercially viable Solid Oxide Fuel Cells (SOFCs) using the additive manufacturing process of Atomic Layer Deposition (ALD). The surface architecture/scaffold added onto the...

作者: Song, Xueyan

点击跳转至所选主题分类列表页 More +



您的位置: 首页 - 科技报告列表

年度结果

25,000

20,000

15,000

10,000

5,000

0

2022 2005 1988 1971 1954 1937 1918

该主题下进行二次检索, 缩小检索范围

主题分类: 材料科学 该主题所有报告列表

查找到 243616 条。检索耗时 0.029 秒

必要 报告名称 请输入检索关键词 模糊

必要 报告号 请输入检索关键词 模糊

开始年份 结束年份

检索

查新引用格式 导出 有全文 有译文 有目录

排序: 时间 | 匹配 | 1 / 100

[报告]-Integrated Computational Materials and Mechanical Modeling for Additive Manufacturing of Alloys with Graded...

报告号: DOE-PITT-31637 发布时间: 2022-01-28

作者: To, Albert Klecka, Michael A

摘要: Wire-arc additive manufacturing (WAAM) has demonstrated its unique capability of producing large-size alloy components with a significantly reduced fabrication time and enhanced geometry design freedom. In this project, the team has developed an ICME (Integrated Computational Materials Engineering) modeling framework...

关键词: Integrated Computational Materials Engineering, Wire Arc Additive Manufacturing, Superalloy, Steel, Phase Transformations

[报告]-Development of Enabling Technologies for Chemical Looping Combustion and Chemical Looping with Oxygen...

报告号: Final Report: DOE-U.Utah-29160 发布时间: 2021-12-31

作者: Whitty, Kevin

摘要: This report summarizes results from the project, "Development of Enabling Technologies for Chemical Looping Combustion and Chemical Looping with Oxygen Uncoupling," which evaluated several aspects of dual fluidized bed chemical looping combustion and chemical looping ...

关键词: chemical looping, CO₂ capture, CLOU

来源机构

DOE 161284

DOD 40649

NASA 24876

PB 16807

分类信息 更多

+ 材料科学 243616

+ 物理学 26159

编译报告: 点击右上角的“More”跳转至所有编译报告的列表页。

编译报告 Translated Reports

点击跳转至所有编译报告列表页 More +

面向战略

Assessment of the Army Research Laboratory, 2013-2014.

Assessment of the Army Research Laboratory,...

NASA Strategic Power Pursuits for Space and Aero Propulsion Applications

NASA Strategic Power Pursuits for Space and...

面向学科

The Rise of Micro-Training Related to User Applications of New Satellite...

The Rise of Micro-Training Related to User...

Training, Retention, and Transfer of Data Entry Perceptual and Motor...

Training, Retention, and Transfer of Data Entry...

面向产业

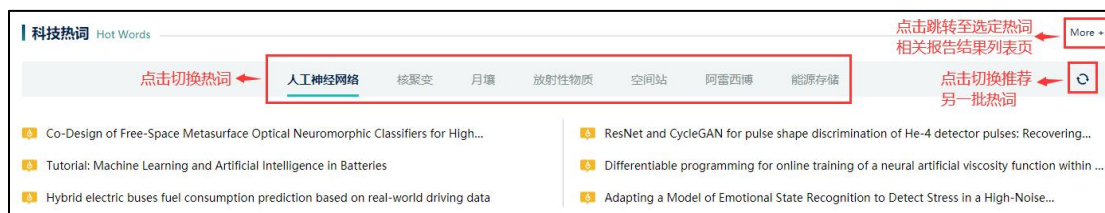
Airspace Technology Demonstration 2 (ATD-2) Phase 2 Technology...

Airspace Technology Demonstration 2 (ATD-2)...

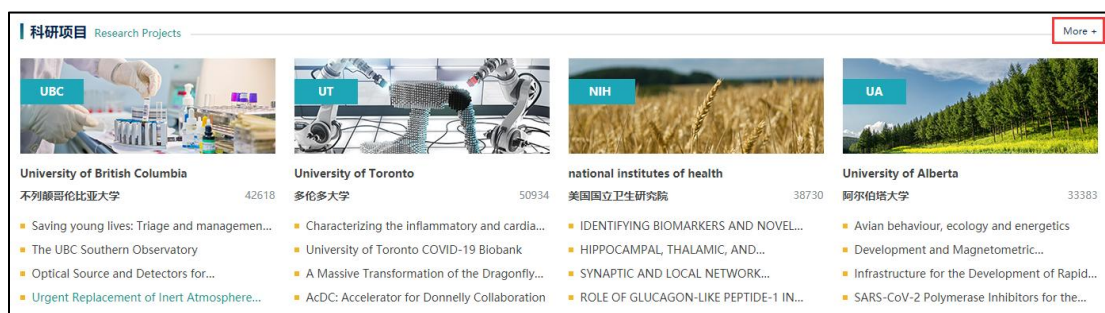
Fuser and Fuser in the Cloud

Fuser and Fuser in the Cloud

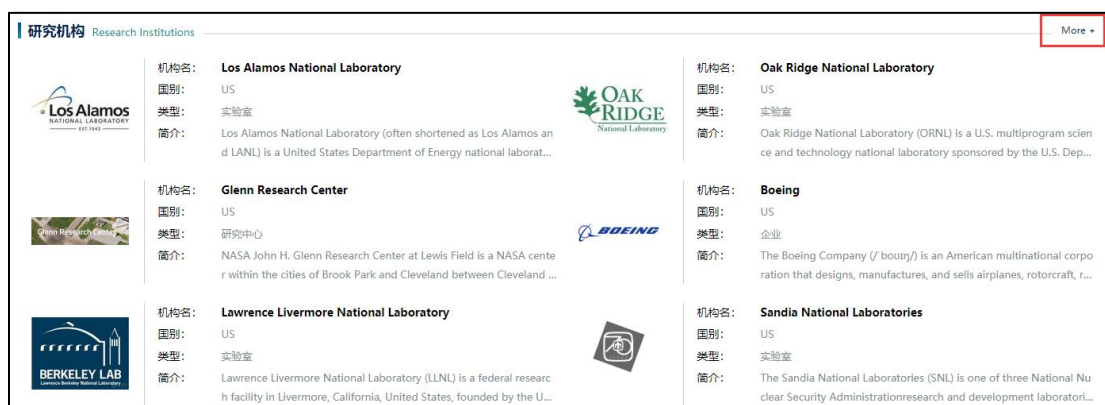
科技热词: 点击不同科技热词可进行切换, 点击“”切换展示另一批推荐热词, 点击右上角的“More”跳转至所有题录信息中包含该热词的所有报告结果列表页。



科研项目：展示了四所机构的科研项目推荐，点击机构名进入由该机构主持的所有科研项目列表页，点击具体项目名进入详情页面，点击右上角的“More”跳转至所有科研项目结果列表页。



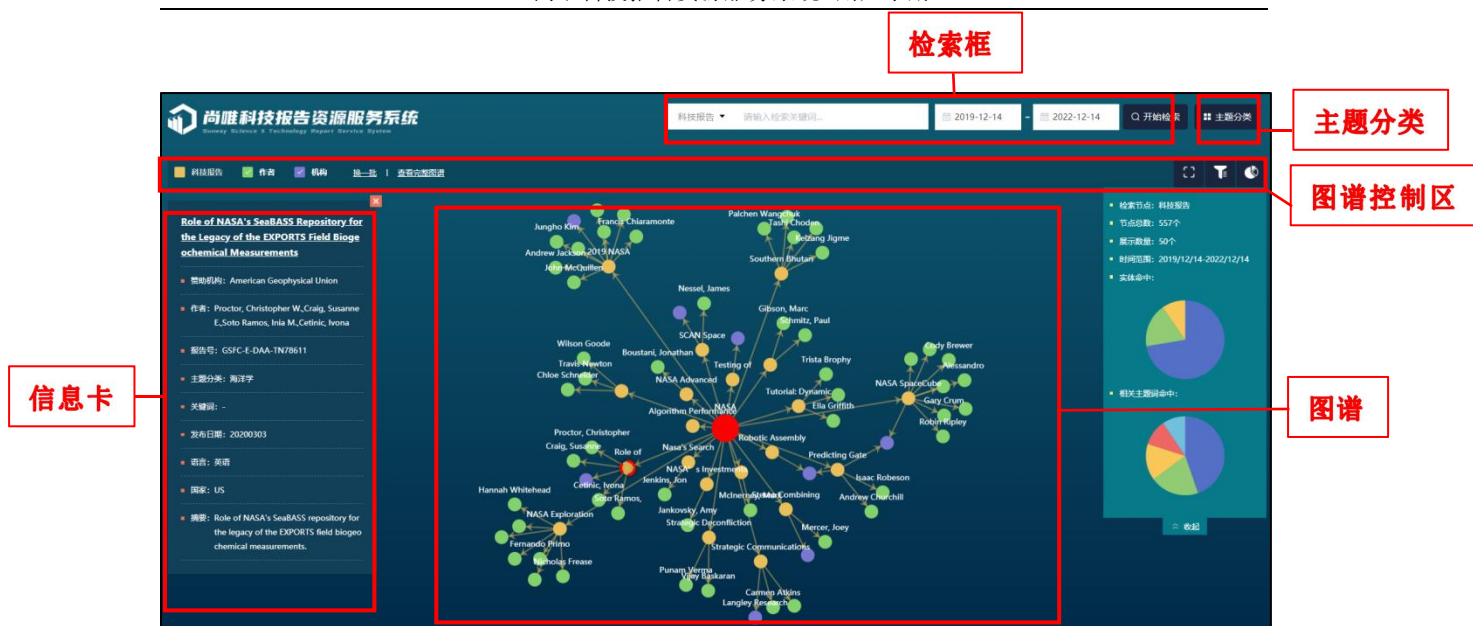
研究机构：推荐展示六所研究机构，点击某一机构即可进入机构详情页，点击右上角的“More”跳转至所有研究机构结果列表页。



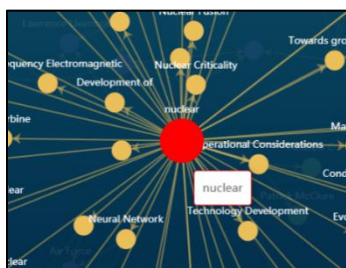
3、知识图谱检索

图谱首页

在首页点击图谱，或者点击导航栏的“知识图谱”，均可跳转至知识图谱检索页面，系统默认展示名称中含有“NASA”的科技报告节点。



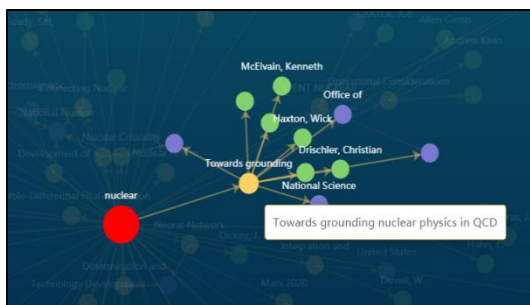
图节点



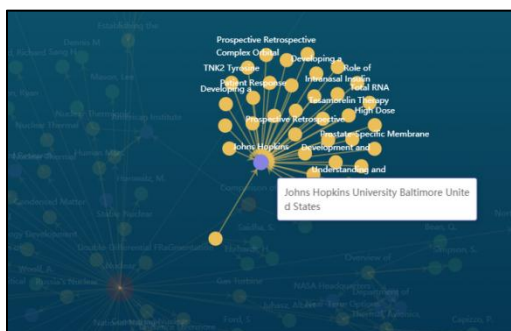
中央红点为检索词节点,做了优化展示;



单击节点，即可选中节点，并展开信息卡，显示该节点的属性信息；若该节点是报告节点，点击报告名称可跳转至详情页；



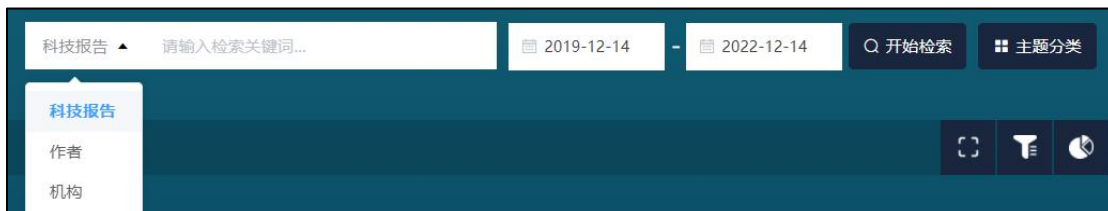
鼠标悬停节点,显示该点详细信息,并高亮显示与其有直接关系的节点;



➡ 双击节点，展开相关节点。

检索框

在检索框左侧下拉菜单中选择科技报告、作者、机构任一字段后，在右侧检索框输入检索词，选择时间后（默认检索近四年的报告节点，可自行调整），点击开始检索即可。



主题分类

点击“主题分类”可进行主题分类的筛选。可以直接输入关键词进行检索，也可根据分类进行逐级检索。每次仅支持选择一个分类进行检索。



图谱控制区

：点击可全屏显示图谱。



: 弹出筛选浮窗, 可以对图谱节点的部分属性进行显示控制。



: 显示图谱统计信息, 并提供统计饼状图。

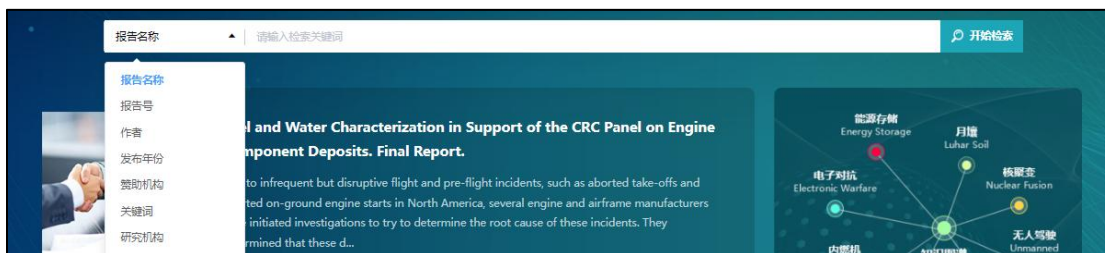
左侧控制区可对展示的节点进行选择, 包括科技报告节点、机构节点和作者节点; 也可以选择换一批或者查看完整图谱。

信息卡

单击某一节点后, 弹出信息卡, 查看相应字段信息。同时, 信息卡中报告名可以直接点击跳转至该报告详情页面; 双击图谱中报告名, 展示与之相关的作者和机构节点; 双击图谱中机构名, 展示与之相关的报告节点。

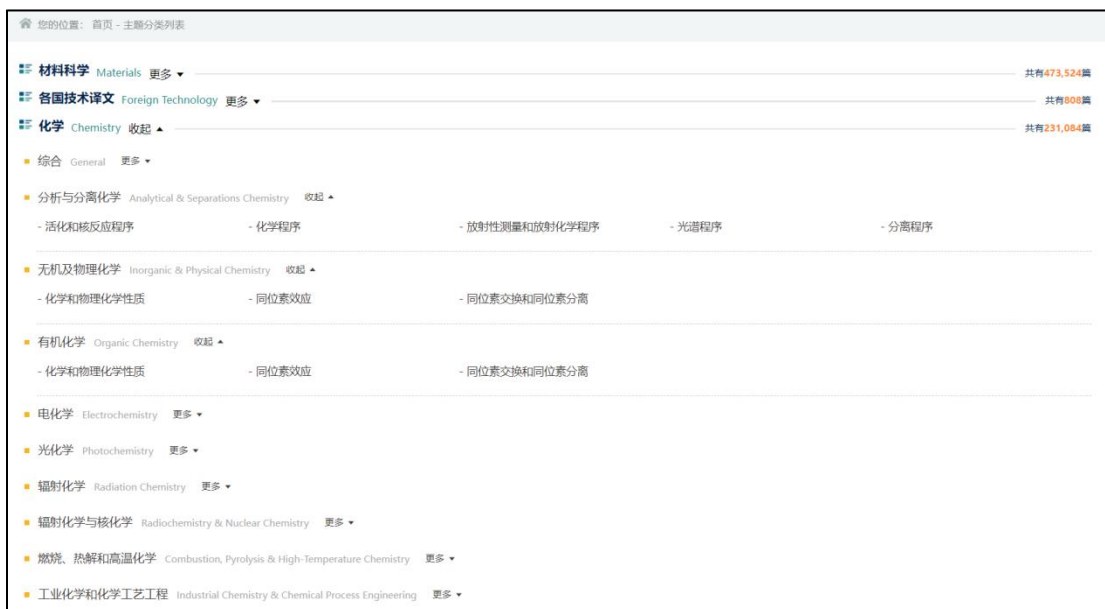
4、快速检索

在检索框左边的下拉菜单中选择检索字段, 如报告名称、报告号、作者、发布年份、赞助机构、关键词、研究机构和科研项目等, 在右边的检索框输入检索词即可进行检索。



5、主题分类

点击导航栏中的主题分类跳转至相关列表页。主题分类共提供三级分类，点击一级分类即跳转至该分类的所有结果列表页，点击一级分类旁的“更多”可展开二级分类，点击二级分类旁的“更多”可展开三级分类，点击任一分类即进入该分类的结果列表页。



6、研究机构

点击导航栏中的研究机构跳转至相关列表页。页面左侧可根据机构字顺进行检索，也可对机构类型进行筛选，精确搜索结果。在页面右侧点击所需结果即可进入详情页面。

A B C D E F G H I J

K L M N O P Q R S T

U V W X Y Z ALL

机构类型

更多

教育机构 1712

其他 545

研究中心 392

政府部门 390

企业 362

必要

机构名称

请输入检索关键词

模糊

必要

机构类型

请输入检索关键词

模糊

检索

2 / 100

Administration on Aging

美国联邦老龄局

国别: US

机构类型: 政府部门

简介: The Administration on Aging (AoA) is an agency within the Administration for Community Living of the United States Department of Health and Human Services. AoA works to ensure that older Americans can stay independent in their communities, mostly by awarding grants to States, Native American tribal organizations, and local communities to support programs authorized by Congress in the Older Americans Act. AoA also awards discretionary grants to...

关联机构

More

- National Institute on Disability, Independent...

Administrative Office of the United States Courts

美国法院行政办公室

国别: US

机构类型: 其他

简介: The Administrative Office of the United States Courts (AO) is the administrative agency of the United States federal court system, established in 1939. The central support entity for the federal judicial branch, the AO provides a wide range of administrative, legal, financial, management, program, and information technology services to the federal courts. It is directly supervised by the Judicial Conference of the United States, the body that sets the national...

关联机构

More

- Federal Judicial Center

Adrian College

艾德里安学院

详情页面提供机构的简介、相关信息（可切换查看基本信息、机构关系、人事信息和其他信息）、发文量统计图表，关联机构（点击“More”查看完整关联机构列表），以及机构报告分类展示（点击“More”进入该机构全部报告列表页）。

Langley Research Center

兰利研究中心

国别: US

机构类型: 研究中心

225 篇报告

The Langley Research Center (LaRC or NASA Langley), located in Hampton, Virginia, United States, is the oldest of NASA's field centers. It directly borders Langley Air Force Base and the Back River on the Chesapeake Bay. LaRC has focused primarily on aeronautical research, but has also tested space hardware at the facility, such as the Apollo Lunar Module. In addition, a number of the earliest high-profile space missions were planned and designed on-site, and Langley was considered a potential site for NASA's Manned Spacecraft Center prior to the eventual selection of Houston, Texas. Established in 1917 by the National Advisory Committee for Ae... [更多...](#)

相关信息 Relevant information

基本信息

机构关系

人事信息

其他信息

外文名: Langley Research Center

名称: 兰利研究中心

国别: US

成立时间: 1917

机构类型: 研究中心

辖区: US Federal Government

总部: Hampton, Virginia, United States

网址: www.nasa.gov/langley

发文量统计 Statistics

发文量统计

15

12

9

6

3

0

1949

1957

1961

1965

1969

1973

1977

1981

1985

1989

2013

2018

环境科学

化学

材料科学

物理学

天文学和天体物理学

地球科学

信息设备

主题分类一级类目报告量统计

- 11 -

地 址: 重庆市北部新区黄山大道中段5号水星大厦B座16层(401121) 传 真: (023) 67033861
销售热线: (023) 86815037 86815002 免费电话: 400-636-0093

研究机构 Related Institutions	
Ames Research Center 艾姆斯研究中心 The Ames Research Center (ARC), also known as NASA Ames, is a major NASA research center at Moffett Federal Airfield in California's Silicon Valley. It was founded in 1939 as the second Nationa...	Armstrong Flight Research Center 阿姆斯特朗飞行研究中心 The NASA Neil A. Armstrong Flight Research Center (AFRC) is an aeronautical research center operated by NASA. Its primary campus is located inside Edwards Air Force Base in California and is...
Marshall Space Flight Center 马歇尔太空飞行中心 The George C. Marshall Space Flight Center (MSFC), located in Huntsville, Alabama, is the U.S. government's civilian rocketry and spacecraft propulsion research center. As the largest NASA...	Glenn Research Center 格伦研究中心 NASA John H. Glenn Research Center at Lewis Field is a NASA center within the cities of Brook Park and Cleveland between Cleveland Hopkins International Airport and the Rocky River Reservation of...
Stennis Space Center 斯坦尼斯空间中心 The John C. Stennis Space Center (SSC) is a NASA rocket testing facility in Hancock County, Mississippi (United States), on the banks of the Pearl River at the Mississippi-Louisiana border. As ...	

7、科研项目

点击导航栏中的科研项目跳转至相关列表页。页面左侧可对项目经费、资助来源、开始年份进行筛选，精确搜索结果。在页面右侧点击所需结果即可进入详情页面，查看该科研项目的详细信息。

项目经费

小于100万

24945

大于100万小于500万

25091

大于500万小于1000万

2029

大于1000万

4822

资助来源

jp-jspc

31180

us-nsf

6312

uk-epsrc

4350

uk-innovateuk

4122

au-arc

2249

开始年份

2022

5

查询到 56984 条，检索耗时 0.004 s

+必要

项目名称

请输入检索关键词

模糊

-必要

项目编号

请输入检索关键词

模糊

2020

—

2022

检索

Excel格式

导出

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其中，系统默认展示近三年的科研项目列表，可根据需要选择起止年份，进行筛选。

8、高级检索

点击高级检索，进入以下页面，通过对检索类型、关键词、年份等进行限制，缩小检索范围，使检索结果更加精准。

检索类型: ☒ 科技报告 ☐ 研究机构 ☐ 科研项目

检索关键词: 报告名称 请输入检索关键词...

年份选择: 2020 2022

检索说明: 高级检索支持使用运算符*、+、-、"、**、()进行同一检索项内多个检索词的组合运算，检索框内输入的内容不得超过120个字符。
输入运算符*(与)、+(或)、-(非)时，前后要空一个字节，优先级需用英文半角括号确定。
若检索词本身含空格或*、+、-、"、/、%、=等特殊符号，进行多词组合运算时，为避免歧义，须将检索词用英文半角单引号或英文半角双引号引起来。
例如：
(1) 篇名检索项后输入：神经网络 * 自然语言，可以检索到篇名包含“神经网络”及“自然语言”的文献。
(2) 主题检索项后输入：(脱造 + 自由脱) * 裂纹，可以检索到主题为“脱造”或“自由脱”，且有关“裂纹”的文献。
(3) 如果需检索篇名包含“DIGITAL LIBRARY”和“INFORMATION SERVICE”的文献，在篇名检索项后输入：'DIGITAL LIBRARY' * 'INFORMATION SERVICE'。
(4) 如果需检索篇名包含“2+3”和“人才培养”的文献，在篇名检索项后输入：'2+3' * 人才培养。

举例：检索类型选择科技报告，检索关键词 1 选择报告名称，输入“blood safety”，检索关键词 2 选择作者，输入“Dauer”，年份选择 1960-2023，精确检索得到 1 篇报告。

检索类型: ☒ 科技报告 ☐ 研究机构 ☐ 科研项目

检索关键词: 必要 报告名称 blood safety

年份选择: 1960 2023



☐ **Blood Banking and Regulation: Procedures, Problems, and Alternatives. Forum on Blood Safety and Blood Availability**

报告号: PB97-124838 发布时间: 1996-01-01

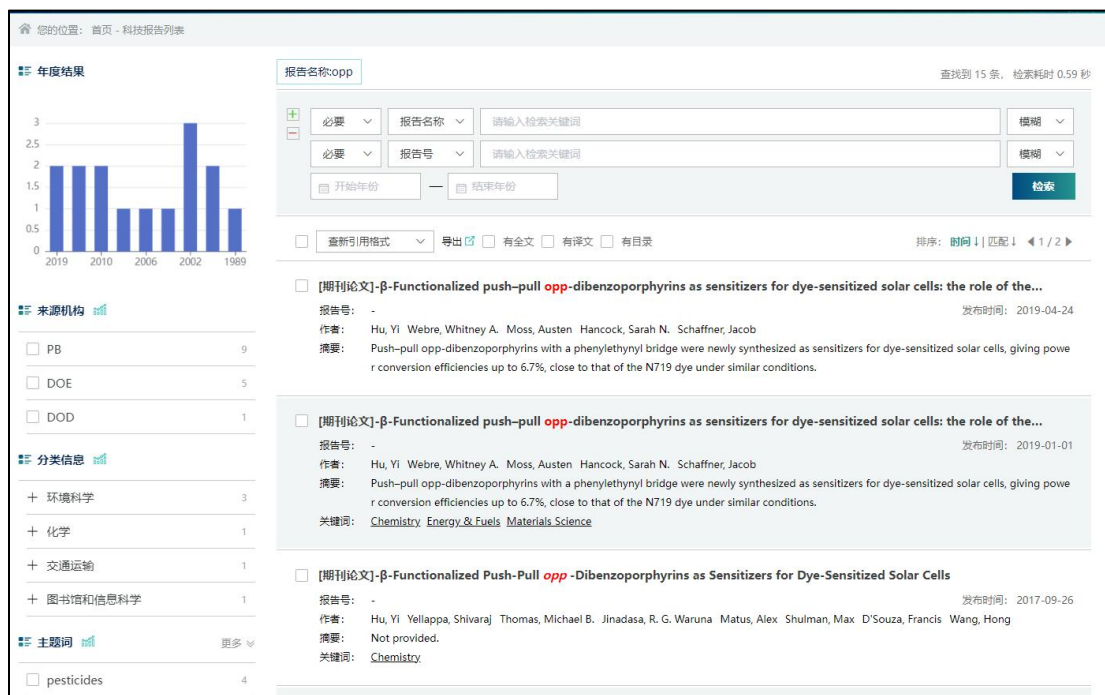
作者: Dauer, E. A.

摘要: The Forum on Blood Safety and Blood Availability was convened by the Institute of Medicine in 1994 to provide an environment within which representatives of blood banking and transfusion medicine, the Food and Drug Administration and other government agencies, and members ...

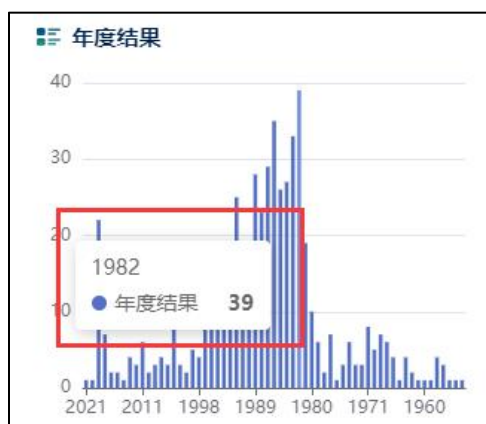
关键词: [Blood banks](#) [Transfusions](#) [Regulations](#) [Safety](#) [Procedures](#) [Alternatives](#) [Policies](#) [Innovations](#)

9、列表页

以报告检索结果列表页为例，主要页面内容如下图：



提供年度结果统计表，鼠标悬停于某年即可查看该年份出版的具体报告数量。



提供来源机构、分类信息、主题词、年份和文档类型的分组聚类，进行条件的筛选，使检索结果更加精确。

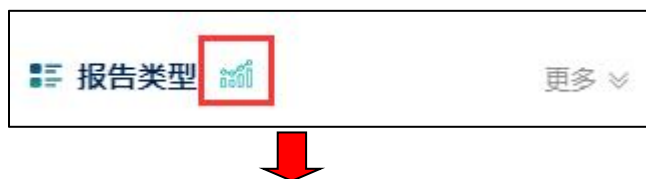
以“报告类型”为例，点击“更多”展开全部报告类型（如下图），点击“收起”则恢复到初始状态。

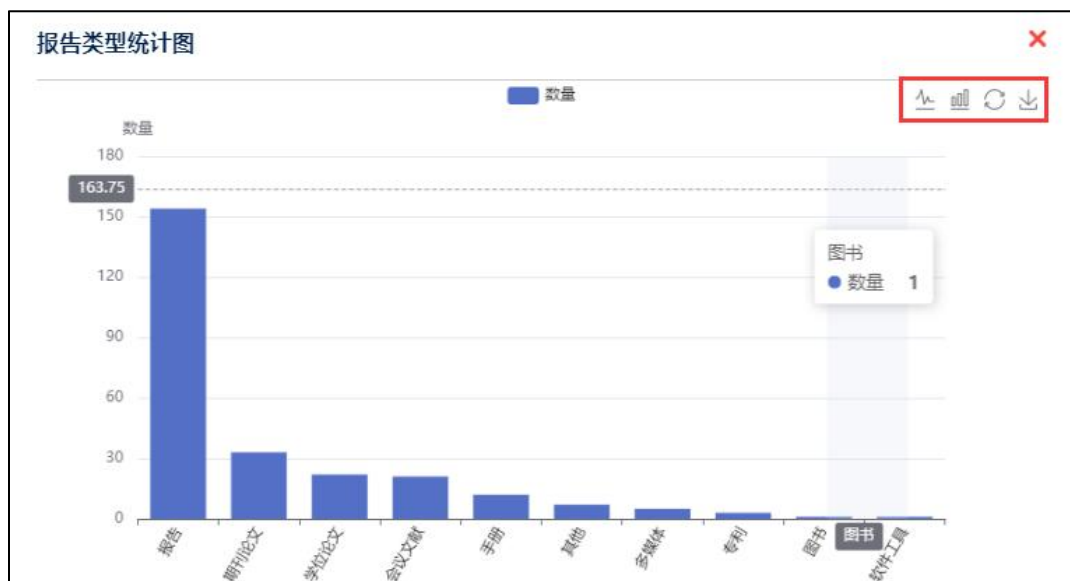


点击具体分类前的“+”展开下级分类，“-”为最后一级分类，点击具体分类则筛选展示该分类下的结果。



点击报告类型旁的统计图标，弹出具体统计图谱，可选择切换折线图或柱状图展示，下载统计图等；鼠标悬停于统计图上，即可查看具体报告类型的数量。





提供结果中检索，可以增加/删减检索条件，最多可支持 9 个检索条件的同时筛选，提供必要/或/非三大逻辑选择、模糊/精确/短语三种匹配度选择，同时可对年份进行筛选限制。

增加检索条件

必要 报告名称 请输入检索关键词 模糊

必要 报告号 请输入检索关键词 模糊

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开始年份 结束年份

检索

提供题录信息导出（可选择导出格式）。

查新引用格式 导出

查新引用格式

NoteExpress格式

EndNote格式

自定义格式

提供有全文（筛除没有全文的报告）/有译文（筛除没有译文的报告）/有目录（筛除没有目录的报告）的筛选。

☐ 有全文 ☐ 有译文 ☐ 有目录

提供按时间（倒序）或匹配度（结果相关度的高低）排序。

排序: 时间 ↓ | 匹配 ↓

10、详情页

以报告详情页为例，可以查看报告的相关信息，进行全文预览，查看当前页面的参考译文，并进行全文或编译报告的下载，以及进行题录信息的导出。

Permanent Closure of the TAN-680 Diesel Underground Storage Tank 98TAN00650 (DEQ Facility ID# 6-120618)

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报告号:	INL/EXT-20-60847-Rev000
作者:	Nisson, Kerry L
关键词:	TAN-650 Permanent Closure
发布日期:	2020-12-14
研究机构:	Idaho National Laboratory
资助机构:	Office of Nuclear Energy
合作机构:	-
主题分类:	石油
报告涵盖时间:	-
国别:	-
语言:	英语
页数:	189
合同编号:	DE-AC07-05ID14517
基金编号:	-
文献类型:	报告
摘要:	This closure package documents the site assessment and petitions for permanent closure of the Idaho National Laboratory (INL) Test Area North (TAN) diesel underground storage tank 98TAN00650 (DEQ Facility ID# 6-120618), in accordance with the regulatory requirements established in 40 CFR 280.71, "Permanent Closure and Changes-In-Service" .

可以对报告的目录进行预览，查看报告的完整目录。

Permanent Closure of the TAN-680 Diesel Underground Storage Tank 98TAN00650 (DEQ
Facility ID# 6-120618)

27382	1 / 1	↺	↓	🖨
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4.	SITE ASSESSMENT AND CONCLUSION.....	3		
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其中，关键词、研究机构、赞助机构、主题分类、合同编号等字段提供检索跳转，点击即可进入相应字段的检索结果展示页面，如点击研究机构名进入该机构详情页面，点击关键词进入该关键词的所有结果列表页。

以“合同编号”为例，点击即可跳转至该合同编号下的所有报告列表页，可以查看项目的所有研究成果，如下图：

国别:	-
语言:	英语
页数:	189
合同编号:	DE-AC07-05ID14517
基金编号:	-



您的位置: 首页 - 科技报告列表

年度结果

来源机构

DOE	2163
PB	2
DOD	1
NASA	1

分类信息

一般和杂项	399
数学科学	174

合同编号: DE-AC07-05ID14517

查找到 2167 条, 检索耗时 0.007 秒

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必要 报告号 请输入检索关键词 模糊

开始年份 结束年份

重新引用格式 导出 有全文 有译文 有目录 排序: 时间 匹配 1 / 100

[报告]-Analytics-at-scale of Sensor Data for Digital Monitoring in Nuclear Plants 3rd Annual Report

报告号: INL/RPT-22-65856-Rev000 发布时间: 2022-02-07

作者: Agarwal, Vivek Lybeck, Nancy J Ramuhalli, Pradeep Taylor, Mike

摘要: Nuclear power plants collect and store large volumes of heterogeneous data from various components and systems. With recent advances in machine learning (ML) techniques, these data can be leveraged to develop diagnostic and short-term forecasting models to better predict fut...

关键词: support vector regression long short-term memory random forest feedwater and condensate feature selection validation Shanley additive exoplanet variance inflation factor

[报告]-Options for Subscale Maturation of Advanced Reactor Technologies Testing for Nuclear Thermal Propulsion

报告号: INL/RPT-22-65557-Rev000 发布时间: 2022-01-25

作者: O'Brien, Robert C Lenox, Katey Eileen Burns, Douglas E Todosow, Michael Werner, James Rieco, Isabella Searight, William

摘要: Several options could be implemented to establish an irradiation testing capability suitable for investigation of the performance of multiple nuclear thermal propulsion fuel elements at prototypic conditions. The prototypic conditions of interest are based on the current needs of the N...

关键词: nuclear thermal propulsion technology advancement level SMART

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留言

提交

11、报告样例

“DOE 报告” 样例展示

ORNL/TM-2021/2365

Development of an Open-source Alloy selection and Lifetime assessment tool for structural components in CSP

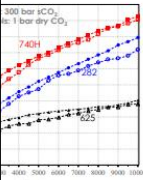


Rishi Pillai
Marie Romedenne
Sangkeun Lee
January 2022

development and validation should include measured rates at the temperatures of interest in $s\text{CO}_2$, depletion of the alloying element forming the temporal evolution of specific mass change (82 and 625), since these alloys have been reported O_2 scales up to 800°C [2, 4, 18-25]. However, for the extremely low fraction of species reacting between phases or molecular regions and non-changes in identifying corrosion products. Furthermore, of the compositional changes in the alloy since the the salt chemistry (different purification procedures), for capsule/test material combinations) and employing The existing corrosion data in the literature for 740H, 82 and 625, salts between $700\text{--}800^\circ\text{C}$ was assimilated and the sections.

Source	Number of datasets
EPR1 [26, 27]	134 stress-temperature combinations
ANL [28]	15 stress-temperature combinations
ORNL [29]	111 creep curves
ORNL [30]	60 creep curves
ORNL	68 metallographic cross-sections

ed to assimilate the temperature dependence of the test comprehensive and long-term data (up to 10,000h) ation behavior of the three alloys 740H, 82 and 625 ange data at 750°C in atmospheric (1 bar) and high town in Figure 1.



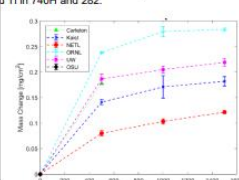
300 bar $s\text{CO}_2$
at: 1 bar dry CO_2

740H
82
625

Time (h)
0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

82 and 625 during exposures in 1 bar and 300 bar $s\text{CO}_2$ at

data sources and reported mass change behavior is summarized in Figure 2. Holcomb et al. [24] r and compared measured oxidation kinetics with studies in the literature have shown that these alloys ng high temperature exposures in $s\text{CO}_2$. Figure 3 of the three alloys at 700, 750 and 800°C after) $s\text{CO}_2$. An external Cr_2O_3 layer was observed on d Ti in 740H and 82.

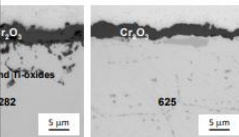


Mass Change (mg/cm²)
0.05 0.1 0.15 0.2 0.25 0.3

Time (h)
0 200 400 600 800 1000 1200 1400 1600

740H
82
625

b) 625 during exposures in 200 bar $s\text{CO}_2$ at 700°C [15].



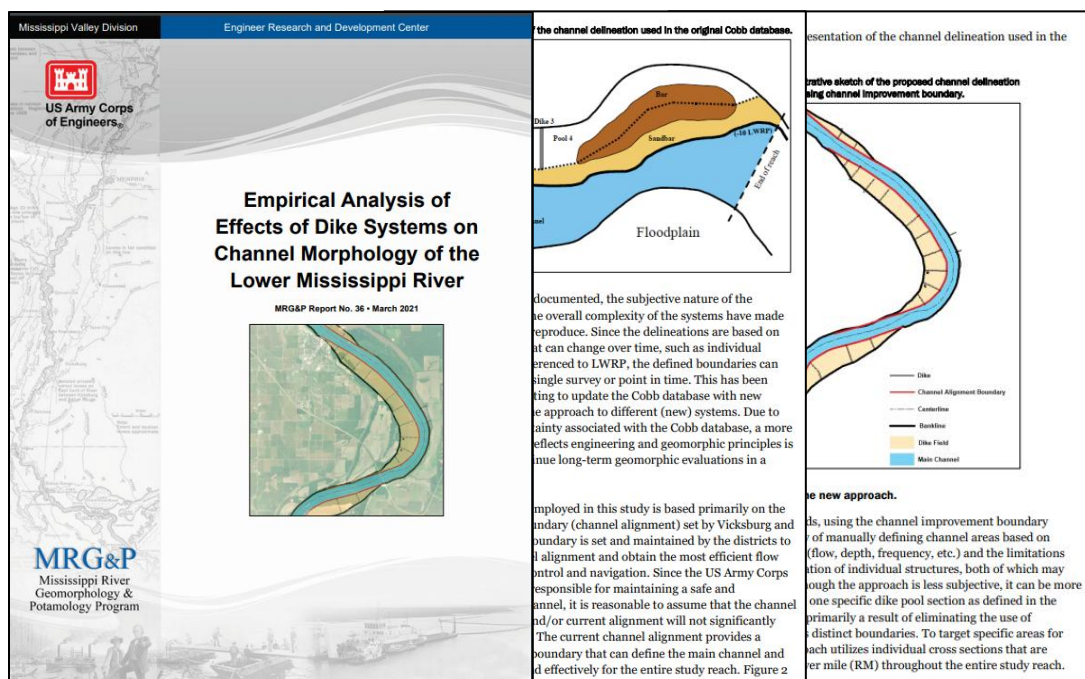
740H
82
625

5 μm

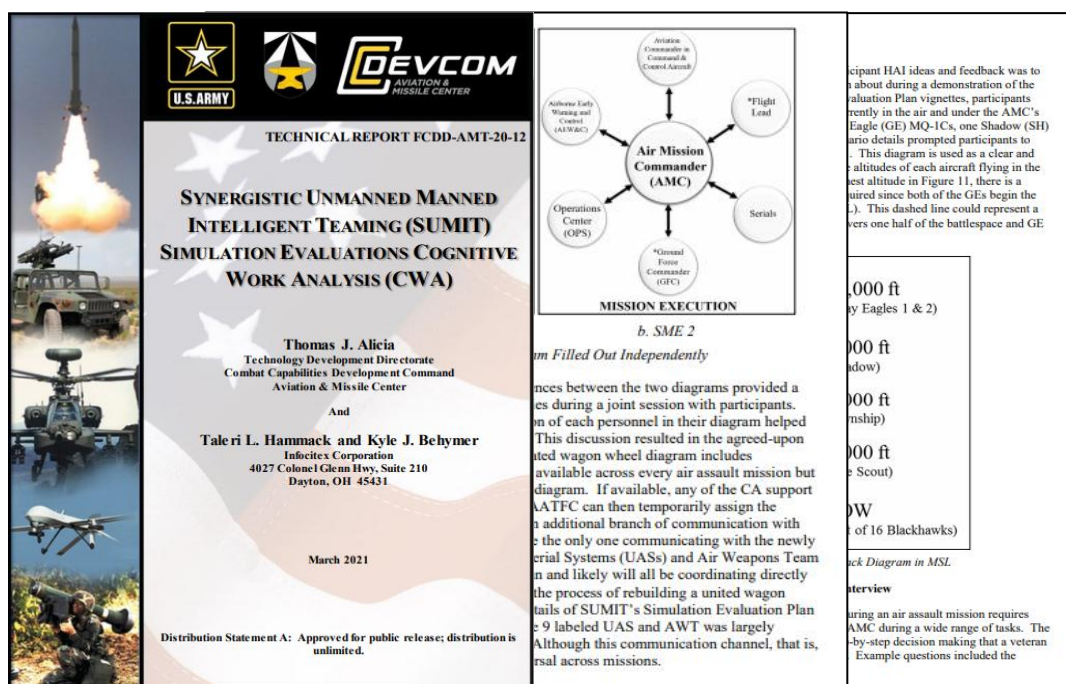
the cross-sections of 740H, 82 and 625 after exposures

ments conducted in the literature includes the application as given in Table 2. Oxidation rates k_p lass change data shown in Figure 1 [4] by fitting to oyed for growth of Cr_2O_3 oxide scales. Based on loss rates k_p can then be calculated from these d molar masses of oxygen and chromium. The tes is given in Figure 4. Since pressure has been g kinetics of Ni-based alloys [4, 19, 24], test data s can be included to increase the statistical is used to estimate the loss of Cr in the alloy and

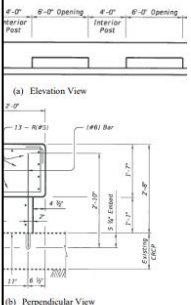
“地球物理学” 报告样例展示



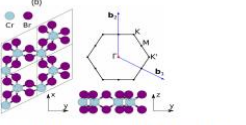
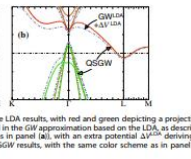
“空气动力学” 报告样例展示



“土木工程”报告样例展示

TTI: 0-6976  DEVELOPMENT AND MASH TL-4 EVALUATION OF TXDOT LARGE-SCUPPER MEDIAN BARRIER FOR FLOOD-PRONE AREAS  Crash testing performed at: TTI Proving Ground 1254 Avenue A, Building 7091 Bryan, TX 77807 Test Report 0-6976-R1 Cooperative Research Program TEXAS A&M TRANSPORTATION INSTITUTE COLLEGE STATION, TEXAS TEXAS DEPARTMENT OF TRANSPORTATION in cooperation with the Federal Highway Administration and the Texas Department of Transportation http://tti.tamu.edu/documents/0-6976-R1.pdf	ons of portable, solid concrete barriers used as permanent broken by the floodwaters. These situations required could be reopened and a level of safety restored for les of flooding scenarios where portable concrete median applications.  (a) Portable concrete median barrier on the Eastern Freeway was broken and thrust aside after Hurricane Harvey in Humble, Texas (left and above) (4). enarios Where Portable Concrete Median Barriers Are as Permanent Applications. important safety feature that provide an increased level of barriers cannot be removed. Consequently, a need exists s designed to accommodate the passage of floodwater implemented in flood-prone areas, such a barrier would so risk to motorists and others in the area, and reduce the grounding area. ading occurred, the existing concrete median barrier was an barrier version of the existing TxDOT T223 bridge rail the barrier's openings (6). The median version of the	crete barrier that consists of a 19-inch x 24-inch concrete crete posts. The 4-ft-long interior concrete posts enings. The concrete barrier is 32 inches tall. Figure 2.3 3 concrete barrier.  (a) Elevation View (b) Perpendicular View an Version of TxDOT T223 Concrete Barrier. CRITERIA safety hardware testing and evaluation criteria, first were intended to be the latest in a series of documents to en of roadside safety features (1, 7). MASH standards test and evaluation procedures to reflect changes in the roadside safety knowledge and technology. MASH ay Research Program (NCHRP) Report 350, Performance Evaluation of Highway Features (8). s designed to fit a TL-4 standard, and as such, MASH C (2420-lb) passenger car impacting the CIP along the al impact speed and angle of 62 mi/h and 25 degrees, ted, 50th-percentile male anthropomorphic test dummy
	8	2021-06-14
	9	2021-06-14

“材料科学”报告样例展示

npj Computational Materials ARTICLE OPEN Importance of charge self-consistency in first-principles description of strongly correlated systems Svaagata Acharya^{1,2}, Dmitriy Pashov³, Alexander N. Rudenko⁴, Malte Rösner⁵, Mark van Schilfhaarde^{2,3} and Mikhail I. Katnelson⁶ First-principles approaches have been successful in solving many-body Hamiltonians for real materials to an extent when correlations are weak or moderate. As the electronic correlations become stronger other embedding methods based on first-principles approaches are used to better treat the correlations by solving a suitably chosen many-body Hamiltonian with a higher level theory. The success of such embedding theories, often referred to as second-principles, is commonly measured by the quality of self-energy Σ, which is either a function of energy or momentum or both. However, Σ should, in principle, also modify the electronic eigenfunctions and thus change the real-space charge distribution. While such practices are not prevalent, some works that use embedding techniques do take into account these effects. In such cases, choice of partitioning of the parameters defining the correlated Hamiltonian, of double-counting corrections, and the adequacy of low-level Hamiltonian hosting the correlated subspace hinder a systematic and unambiguous understanding of such effects. Further, for a large variety of correlated systems, strong correlations are largely confined to the charge sector. Then an adequate nonlocal low-order theory is important, and the high-order local correlations embedding contributes become redundant. Here we study the impact of charge self-consistency within two examples cases, TSe₂ and CrBr₂, and show how real-space charge re-distribution due to correlation effects taken into account within a first-principles Green's function-based many-body perturbative approach is key in driving qualitative changes to the real electronic structure of these materials. npj Computational Materials (2021)7:208. https://doi.org/10.1038/s41524-021-00676-5 INTRODUCTION Density functional theory^{1–3} has been the workhorse for materials-specific electronic structure calculations for the last half of the century. Despite enormous success in many respects, it has however some intrinsic limitations. First of all, although the Hohenberg-Kohn theorem⁴ guarantees the existence of some density functional providing an exact ground state energy at a given charge density distribution ρ, its exact form is unknown. In practice, this functional is considered as being local or almost local (generalized gradient corrections), which is generally speaking an uncontrollable approximation (for detailed discussions see the review⁵). Next, and even more importantly, the Kohn-Sham quasiparticles⁶ are, generally speaking, just auxiliary quantities to calculate the total energy and their direct comparison with experimental spectroscopic information is hardly justifiable. Although this is regularly done with partial explicit agreement, there are numerous counterexamples starting from the famous ‘gap problem’ in semiconductors⁷. An alternative approach is based on the concept of functionals of the Green's function. Luttinger-Ward⁸ and Baym-Kadanoff⁹ theorems respectively prove the existence of such functionals in- and out-of-equilibrium. Conceptually, this way is more attractive since the knowledge of an exact single- and two-particle Green's functions guarantees an accurate description of spectroscopic properties of solids¹⁰. On the other hand, again, an exact form of this functional is practically unknown and we have just to formal definition in terms of infinite sums of skeleton free-leg diagrams¹¹. If we are interested in a description of subtle phenomena such as, e.g., the Kondo effect¹² or nonquasiparticle states in half-metallic ferromagnets¹³, the necessary sequence of diagrams seems to be too complicated to be practically taken into account for a complete first-principle realization. Therefore, alternative embedding approaches were introduced which combine first-principle calculations with model treatments to describe the strong correlations within some low-energy subspace. This way, weakly correlated states at high energies are described within a low-level theory, while the strongly correlated sub-space is treated in higher-level approaches. This is popularly done by mapping the low-energy space to multi-band generalized Hubbard models, which are afterwards often solved, e.g., using dynamical mean-field theory (DMFT)¹⁴, a program suggested and called LDA¹⁵ in ref. 16 and which we refer to in the following as ‘second-principles’. In many cases, this leads to a dramatic improvement of description of strong correlation effects in real materials with itinerant-electron magnets¹⁷ and heavy-fermion compounds¹⁸ being two major successful examples (for detailed reviews see refs. 19,20). Of course, DMFT¹⁴ is a local approximation that takes only the energy dependence of electronic self energy into account and completely neglects its momentum dependence. However, the latter can be taken into account via various beyond-DMFT diagrammatic approaches²¹, rendering it a technical problem rather than a fundamental one. Also the way how one can map the first-principle electronic structure onto effective Hamiltonians can be, in principle, improved. The contemporary way is based on the so-called constrained RPA (cRPA) approach²² but there are no principle obstacles to improve it further if necessary. A key impediment to second-principles approaches is, however, that multiple energy scales are operative: the high-energy scales	in zone, a Bulk TSe₂ and b) CrBr₂. b₁, b₂, and b₃ denote reciprocal  situations (typically when spin fluctuations are strong), can be well captured within a many-body perturbative framework that is completely free of ambiguities that plague most commonly practiced second-principles approaches, and moreover, the additional high-order correlations are redundant. The physical question of fundamental importance, in such cases, is the following: can a real-space charge redistribution due to correlation effects be qualitatively important leading not just to a moderate renormalization of the model parameters but also to a reconstruction of the electronic structure beyond any purely model consideration? In this work we give a positive answer on this question providing two examples, namely, TSe₂ and CrBr₂. We show in the following how different levels of theory significantly modify the effective one-body potential through changes in the electron density. To this end, we employ three different levels of theory: the local-density approximation (LDA), GSGW theory^{23–25}, which, in contrast to conventional GW, modifies the charge density and is determined by a variational principle²⁶, and finally an extension of GSGW, where the polarizability needed to construct $\tilde{W}$ is computed including vertex corrections (ladder diagrams) by solving a Bethe-Salpeter equation (BSE) for the two-particle Hamiltonian²⁷. We denote the latter GSGW, with the substitution $\tilde{W} \rightarrow W$ signifying that a BSE was solved to compute $\tilde{W}$ in each cycle of the RPA polarizability is made anew, which determines the RPA $\tilde{W}$. In each cycle the four-point polarizability is recomputed from the (newly updated) static part of $\tilde{W}$, to update $\tilde{W}$. These first-principles approaches allow us to carefully analyze the impact of the full charge self-consistency taking correlation effects with increasing diagrammatic precision into account. In terms of diagram classes taken into account GSGW and QS represent the forefront of currently available first-principles approaches. As we show, it is essential that the first-principles starting point is of sufficiently high fidelity to capture physics the second-principles scheme cannot reach. First-principles schemes are too cumbersome to handle more than a limited class of diagrams, and it may still be true in general that second-principles schemes may still be needed to capture physics outside the reach of the first-principles schemes. Kondo effect, non-quasiparticle states in weakly doped Mott insulators, Hund's metals, and half-metallic ferromagnets are archetypal examples. For TSe₂ and CrBr₂, however, GSGW/QSGW adequately describes most physical observables, both for its ground- and excited states^{24,25} obviating the need for higher-order spin-fluctuation diagrams, usually accomplished by second-principles schemes. GSGW and QSGW don't include spin fluctuation diagrams beyond Fock exchange, but these extra diagrams are unimportant for TSe₂, being non-magnetic and not para-magnetic, and CrBr₂, an itinerant ferromagnet with a large local moment. The rest of the paper discusses the crucial role of charge self-consistency in such materials, which form an enormous proportion of the condensed matter systems.	S. Acharya et al. underestimate the gap in semiconductors, albeit less so than the LDA²⁸. These effects can only be found through self-consistency. QSGW is ideally suited for this case, as its excitation spectra are generally superior to fully self-consistent GW^{29–32}. We find that the $\tilde{W}$ is indeed semimetallic, as is the case with DFT, but for different reasons. We first revisit the GW calculation of the undistorted FeC structure, but with some modifications: • we did not include a Z factor. There are various justifications for this, most notably as an approximate way to incorporate self-consistency in G with fixed $\tilde{W}$ see Appendix in ref. 33. • Omission of Z tends to widen bandgaps. • the full matrix $G^{(0)}W^{(0)}$ is used, in the GSGW sense³⁴. $\tilde{W} = \frac{1}{\epsilon_0} \sum_{\mathbf{q}} \left(\text{Re}[\epsilon(\mathbf{q})] + \text{Re}[\epsilon(\mathbf{q})] \right) \phi_{\mathbf{q}} \quad (1)$ Panel (a) of Fig. 2 shows LDA and $G^{(0)}W^{(0)}$ bands similar to the $G^{(0)}W^{(0)}$ calculation of ref. 35. Focusing on the LDA bands, the highest occupied state at Γ turns red very close to Γ, indicating the penetration of the Ti-derived conduction band into the valence band indicating a negative direct gap. This is an artifact of the LDA's well known tendency to underestimate splittings between occupied and unoccupied states, and $G^{(0)}W^{(0)}$ increases this separation (blue dashed lines) as it typically does. The indirect $G^{(0)}W^{(0)}$ gap of 300 meV is slightly larger than ref. 35, in line with the unit Z factor used in the present calculation. Figure 2b shows that self-consistency is crucially important in TSe₂. The off-diagonal elements of $\tilde{W}$ modify the density $\rho(\mathbf{r})$ and thus $\tilde{W}$. A simple way to estimate $\Delta \rho$ is to make an ansatz that the LDA adequately yields $\rho = \rho_0 + \delta \rho$. For a modified $\tilde{W}$ the potential becomes $V(\mathbf{r}) = V_0 + \delta V(\mathbf{r}) = V_0 + \tilde{W}(\mathbf{r})$. It can be determined self-consistently in the usual manner by adding a fixed external potential $V = -V_0 \exp(-\alpha r)$ to the LDA Hamiltonian and allowing it to go self-consistent. Remarkably, the gap becomes negative again, as shown by the blue dashed lines in Fig. 2b, but the dispersion is very different from the LDA. In particular the inverted gap character at Γ disappears, which is topologically essential for a gap to form at Γ. The quality of the ansatz can be checked by carrying out a complete GSGW calculation. This is shown as solid lines in Fig. 2b, and it demonstrates the ansatz is reasonable. As we will show elsewhere, the experimentally observed low-temperature gap forms as a consequence of the charge density-wave instability. Electronic structure of CrBr₂ Monolayer (1L) of CrBr₂ is a two-dimensional ferromagnetic (FM) insulator where the magnetic moments of monolayer CrBr₂ align normal to the plane (see Fig. 1 for the crystal structure). The spontaneous magnetization persists in monolayer CrBr₂ with a  are LDA results, with red and green depicting a projection onto Ti and Fe in the GW approximation based on the LDA, as described in the text, as in panel (a), with an extra potential $\Delta V^{(0)}$ deriving from a p shift of QSGW results, with the same color scheme as in panel (a).
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