IOP Publishing | science first

IOP平台功能和亮点介绍

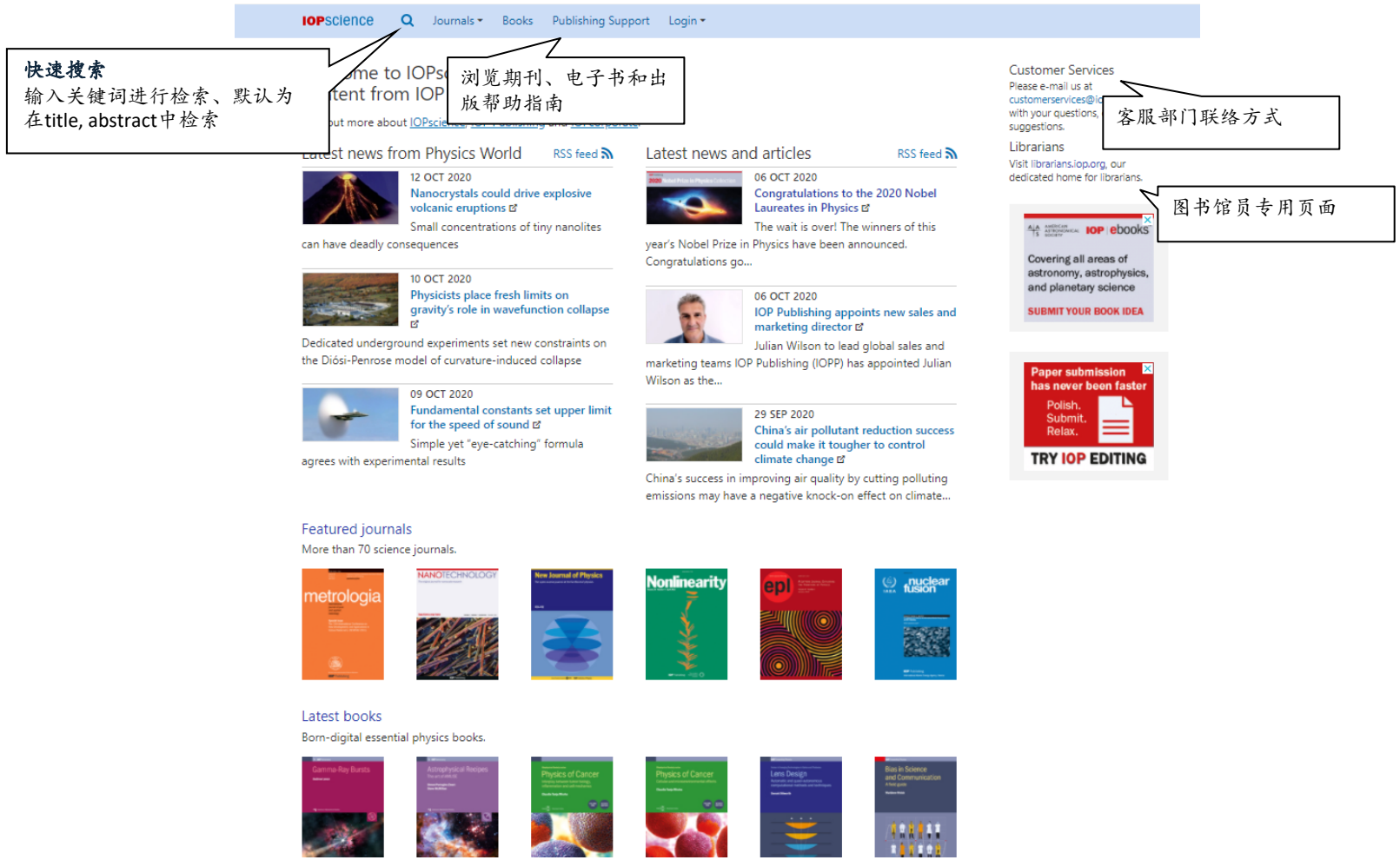
IOP的综合内容平台—IOPscience

- 加快研究速度：强化的搜索过滤系统帮助您更快地找到相关资料
- 与时俱进：在新内容发表后，收取RSS即时信息和电邮提醒
- 互动与分享：可做社交书签以分享文章
- 个性化：为信息提醒设置个人化方式，保存感兴趣的文章，并可阅读专业领域新发表的论文／文章
- https://iopscience.org

IOPscience

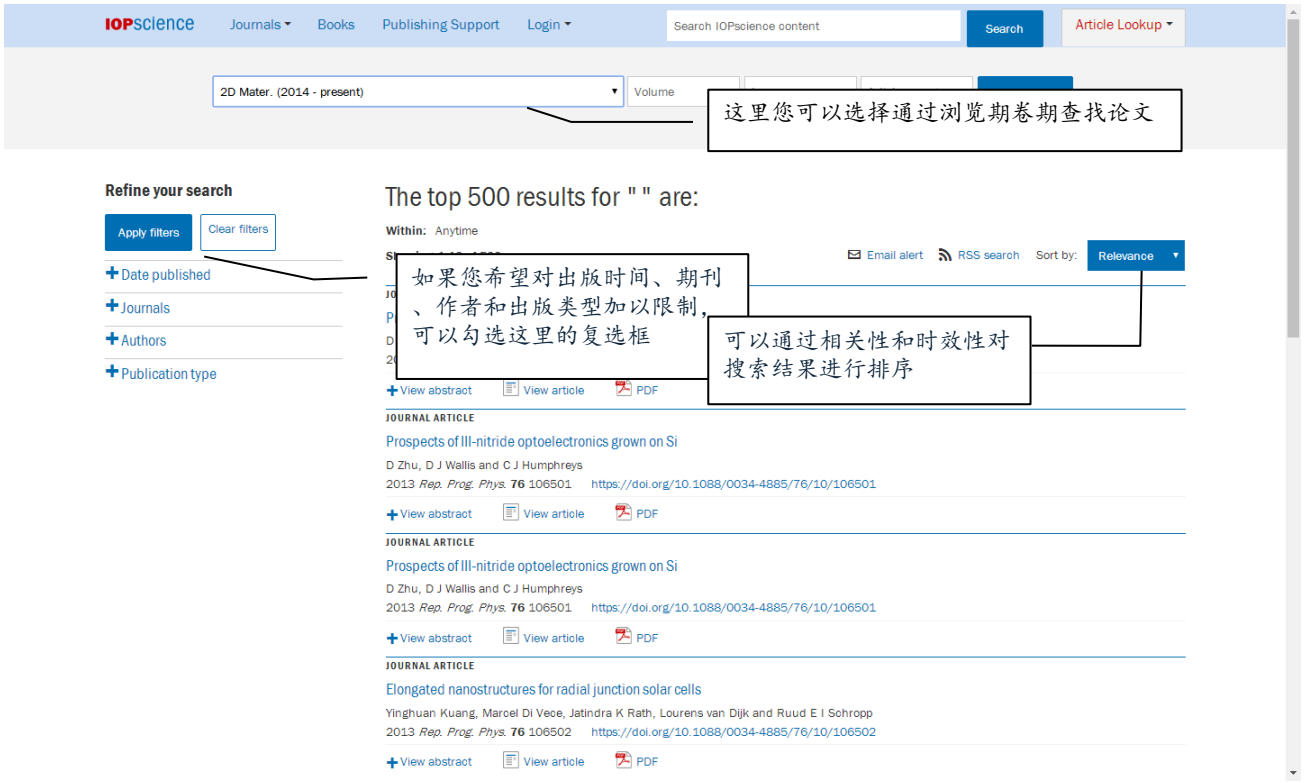
https://iopscience.org

主页和搜索


IOPscience
Journals
Books
Publishing Support
Login
快速搜索
输入关键词进行检索、默认为在title, abstract中检索
浏览期刊、电子书和出版帮助指南
Latest news from Physics World
RSS feed
12 OCT 2020
Nanocrystals could drive explosive volcanic eruptions
Small concentrations of tiny nanolites can have deadly consequences
10 OCT 2020
Physicists place fresh limits on gravity's role in wavefunction collapse
Dedicated underground experiments set new constraints on the Diósi-Penrose model of curvature-induced collapse
09 OCT 2020
Fundamental constants set upper limit for the speed of sound
Simple yet "eye-catching" formula agrees with experimental results
Latest news and articles
RSS feed
06 OCT 2020
Congratulations to the 2020 Nobel Laureates in Physics
The wait is over! The winners of this year's Nobel Prize in Physics have been announced. Congratulations go...
06 OCT 2020
IOP Publishing appoints new sales and marketing director
Julian Wilson to lead global sales and marketing teams IOP Publishing (IOPP) has appointed Julian Wilson as the...
29 SEP 2020
China's air pollutant reduction success could make it tougher to control climate change
China's success in improving air quality by cutting polluting emissions may have a negative knock-on effect on climate...
Featured journals
More than 70 science journals.
metrologia
NANOTECHNOLOGY
New Journal of Physics
Nonlinearity
epl
nuclear fusion
Latest books
Born-digital essential physics books.
Customer Services
Please e-mail us at customerservices@io with your questions, suggestions.
客服部门联络方式
Librarians
Visit librarians.iop.org, our dedicated home for librarians.
图书馆员专用页面
IOP ebooks
Covering all areas of astronomy, astrophysics, and planetary science
SUBMIT YOUR BOOK IDEA
Paper submission has never been faster
Polish. Submit. Relax.
TRY IOP EDITING

IOP Publishing | science first

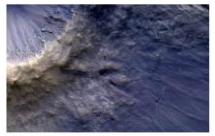
论文查找页面

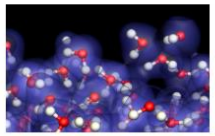


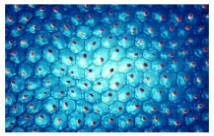
学科选集

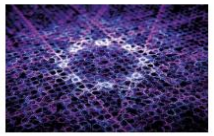
Subject collections

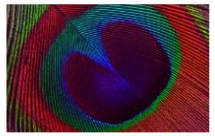
Discover the latest research published in your subject area from across our portfolio of leading journals, an award-winning digital book programme, conference proceedings and expert science journalism.


Astronomy and astrophysics

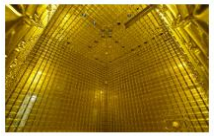

Atomic and molecular physics

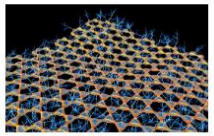

Biomedical engineering


Condensed matter

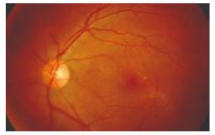

Education

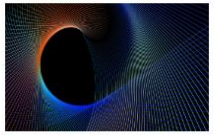

Environment and energy


Instrumentation and measurement


Materials


Mathematics and computation


Medical physics and biophysics


Optics and photonics


Particle and nuclear physics

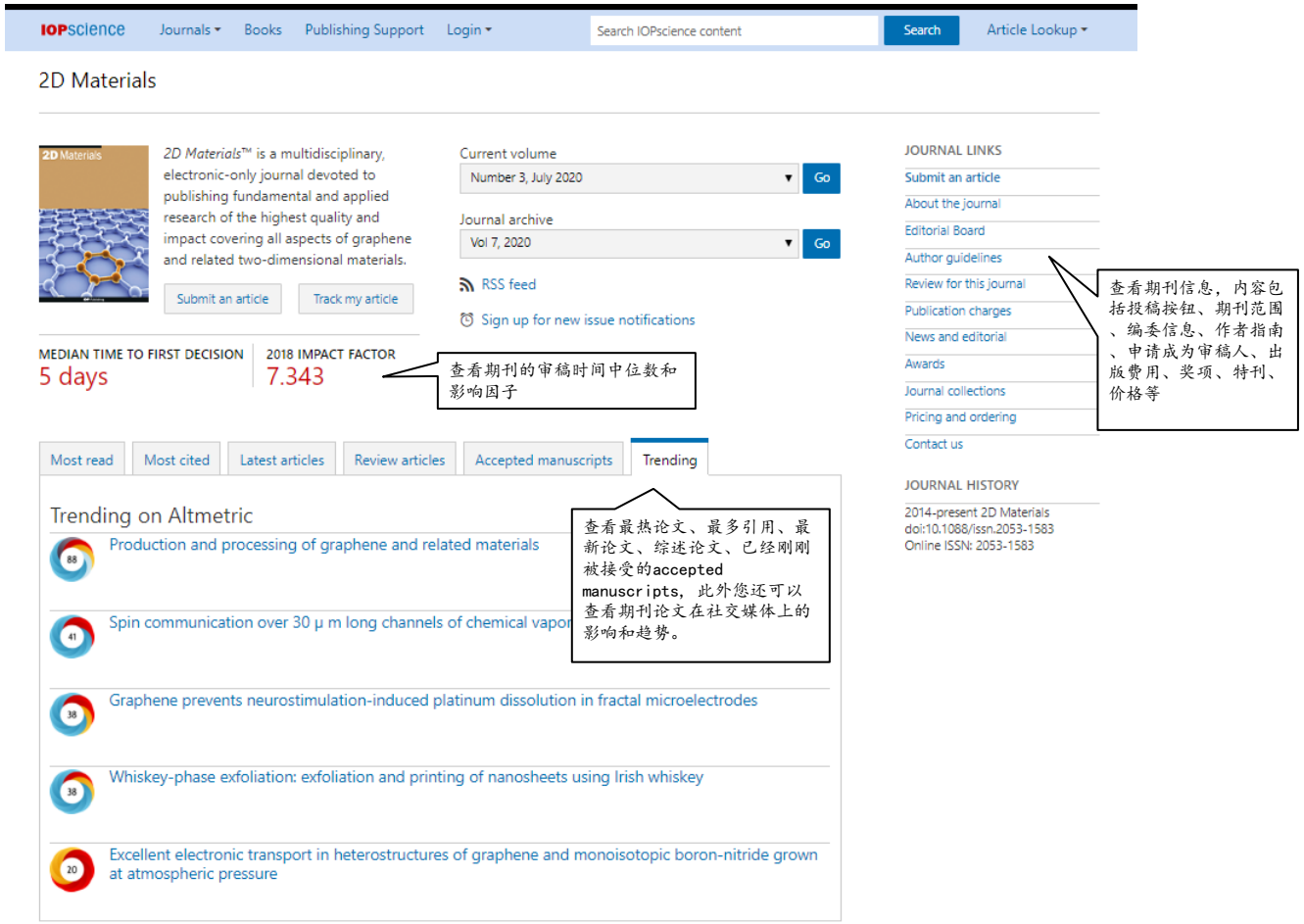

Plasmas


Quantum science

学科选集的内容包含研究新闻、热点评论、学科综述、精选论文、作者资源、近期会议资讯、以及相关的期刊、电子书和包括视频摘要以及作者采访在内的多媒体内容等，帮助读者更加全面地了解学科的发展

IOP Publishing | science first

Journal Page

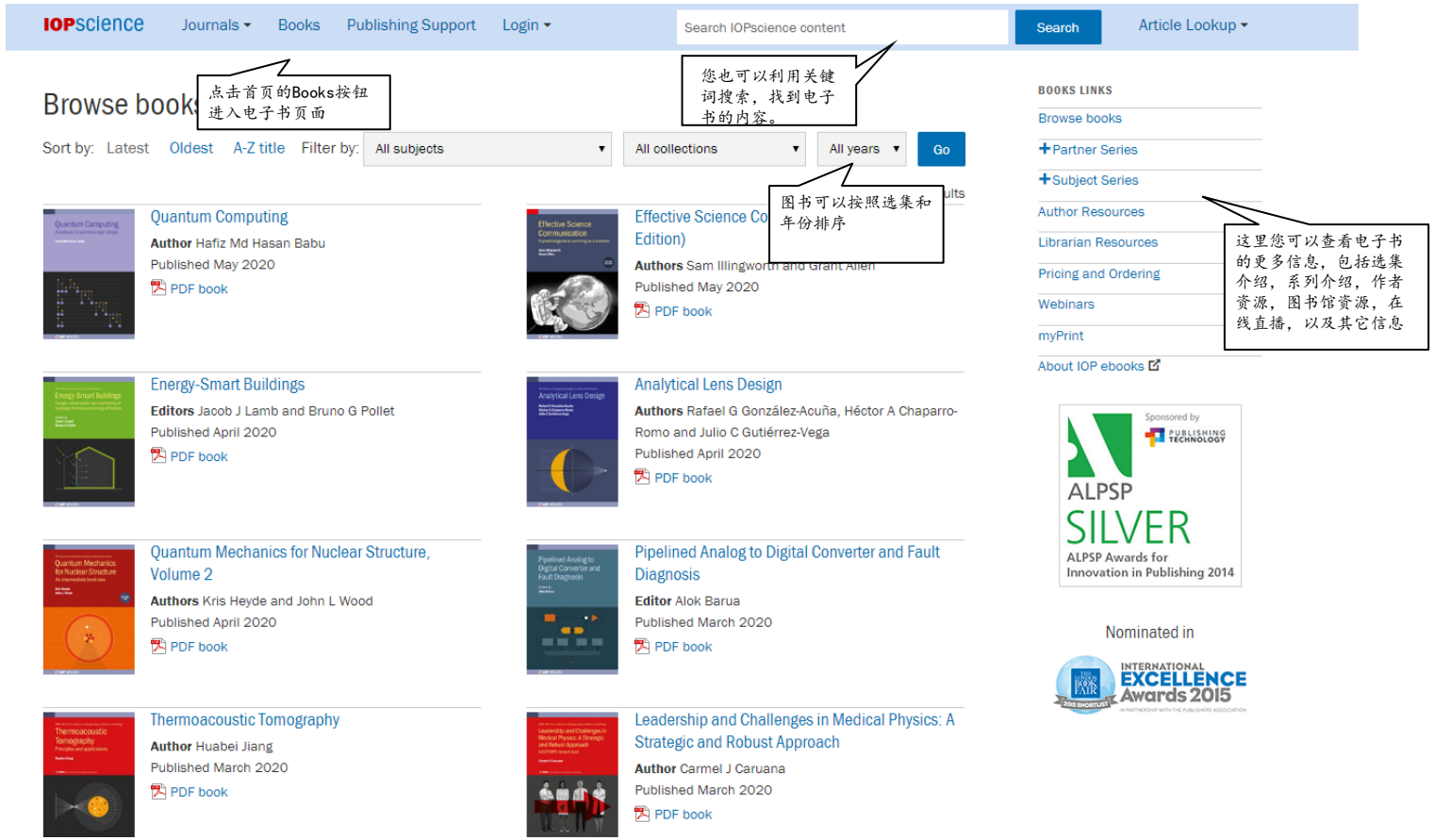


IOP Publishing | science first

Article Page

IOP Publishing | science first

电子书首页



IOP Publishing | science first

章节页面

平台功能亮点

内置视频

that has given us this high technology life. This is nicely illustrated by Professor Jesper Nygård in the video of figure 1.1. Several research technologies are discussed in this video, and we will treat many of them in the following chapters of this book.

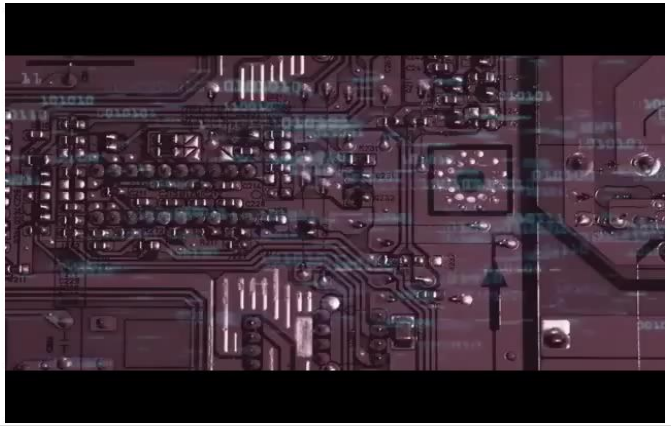
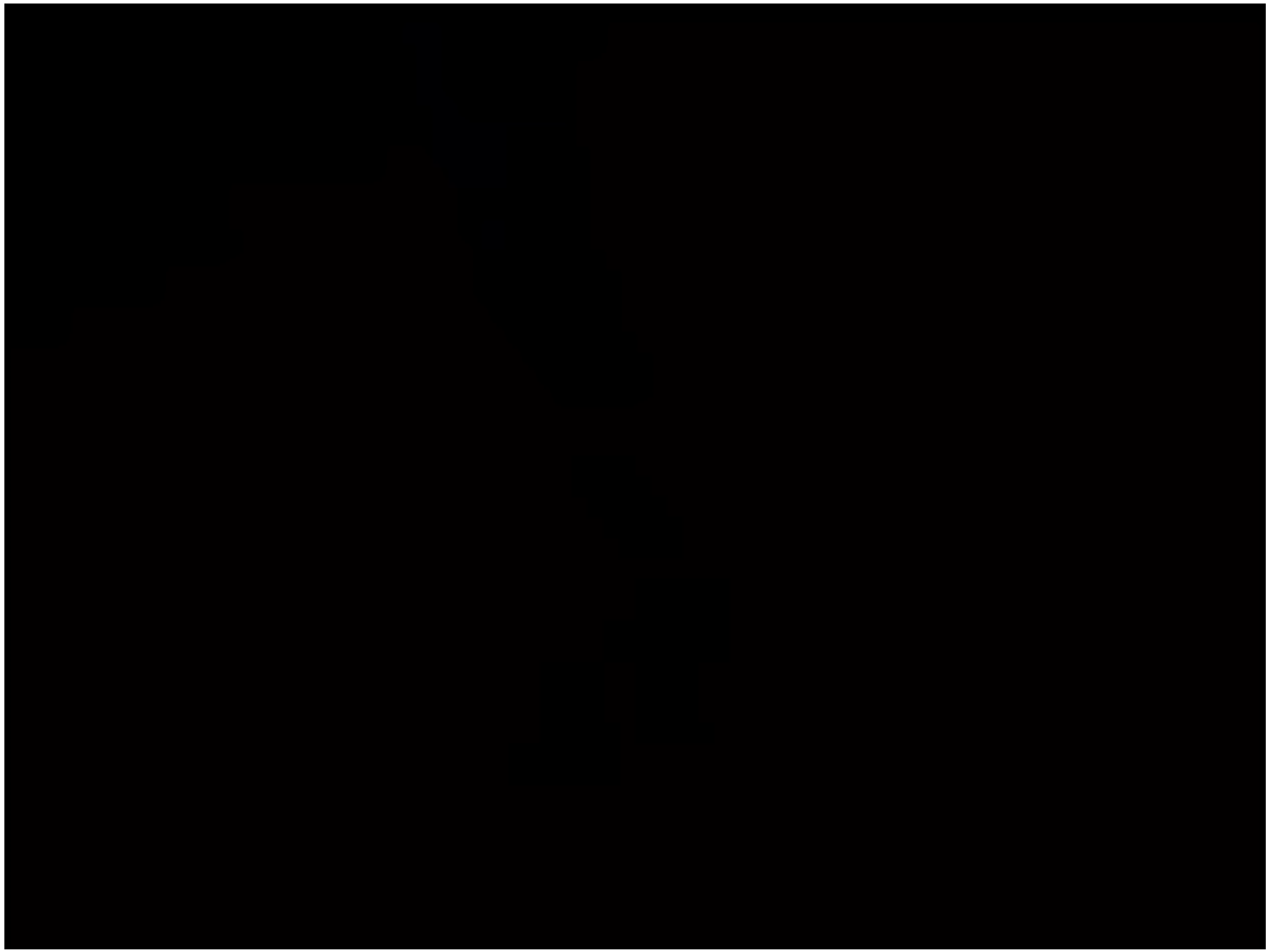
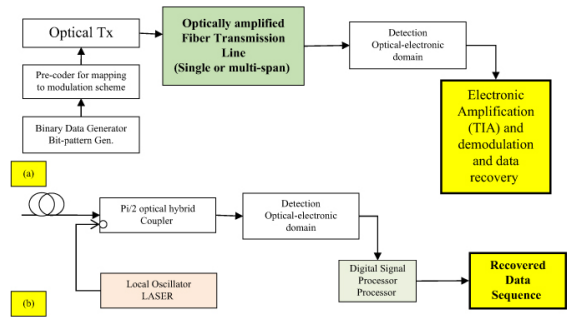


Figure 1.1. Jesper Nygård on nanotechnology, artificial atoms, and the future of computing. (Video hosted by Professor Jesper Nygård, Neils Bohr Institute, and produced by the Compound for Neils Bohr Institute, included here with their permission.)



平台功能亮点

图片下载和导出



Zoom In Zoom Out Reset image size

Figure 1.1. Schematic diagram of the modulation. (a) Electronic detection and demodulation of an advanced modulation format optical communications system. (b) Modulation and direct detection if no local oscillator laser is employed. Optical transmission link in single- or multi-cascade spans.

Download figure:

Standard image | High-resolution image | Export PowerPoint slide

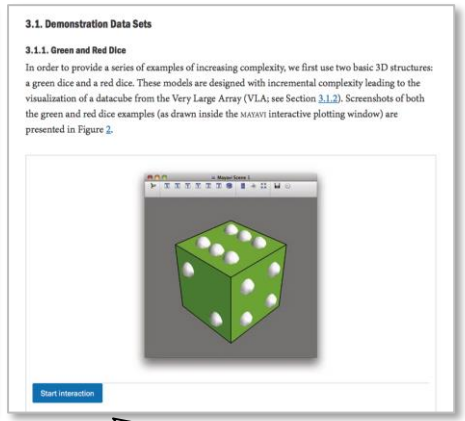
下载标准图片

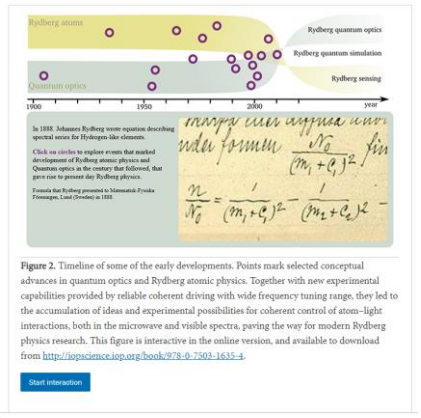
下载高清图片

可以直接将图片导入到PPT中

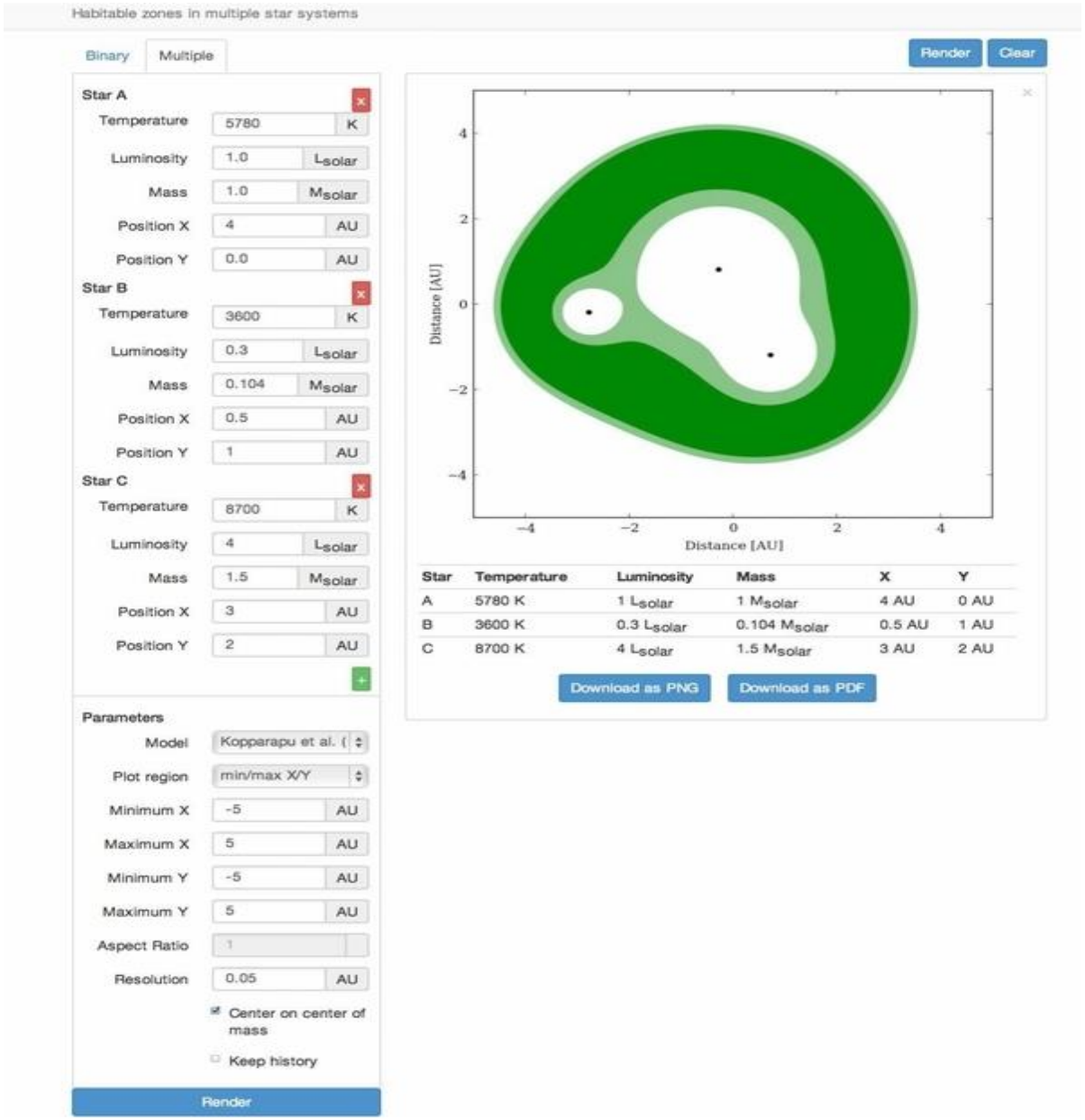
平台功能亮点

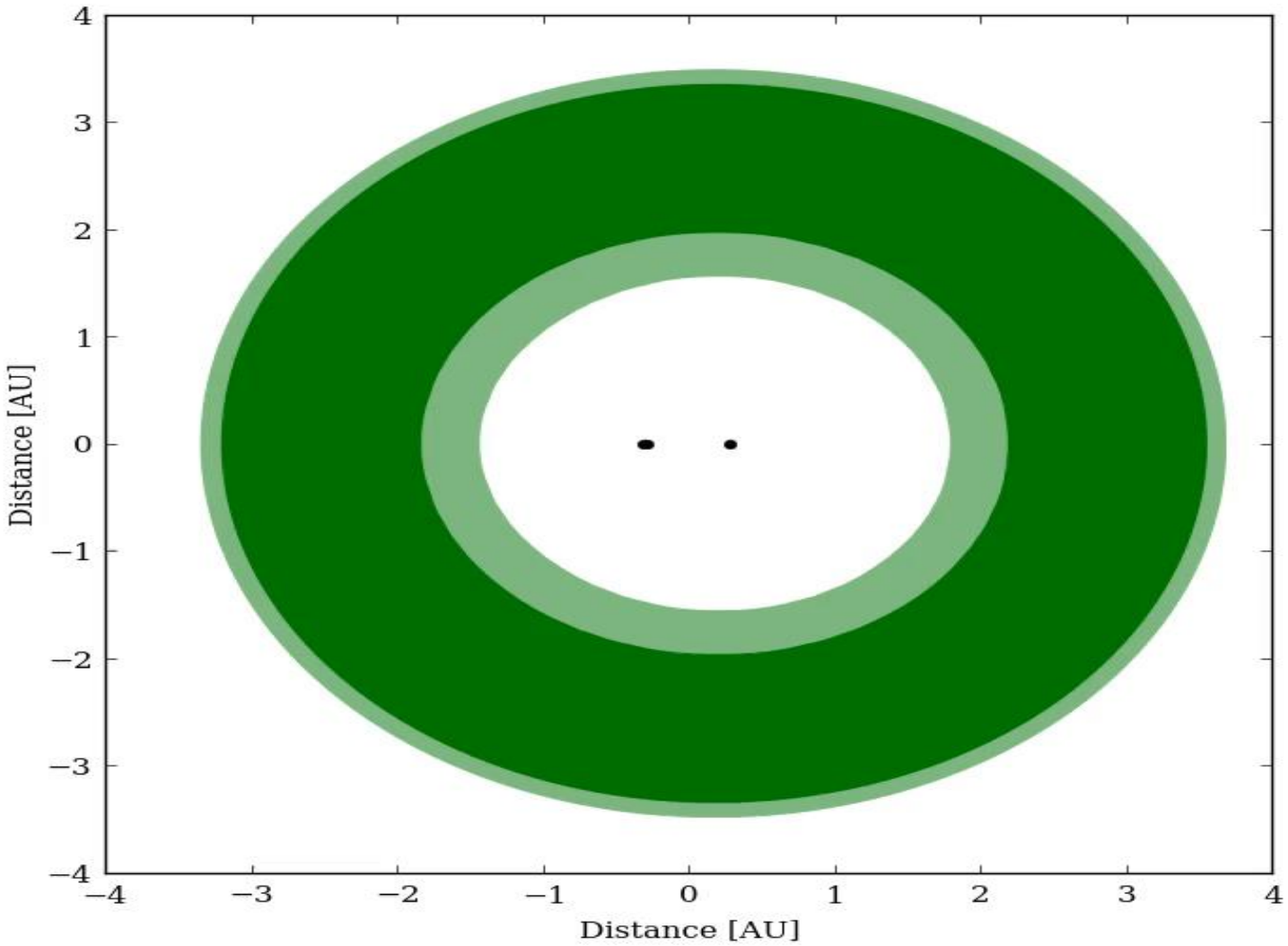
交互式图表





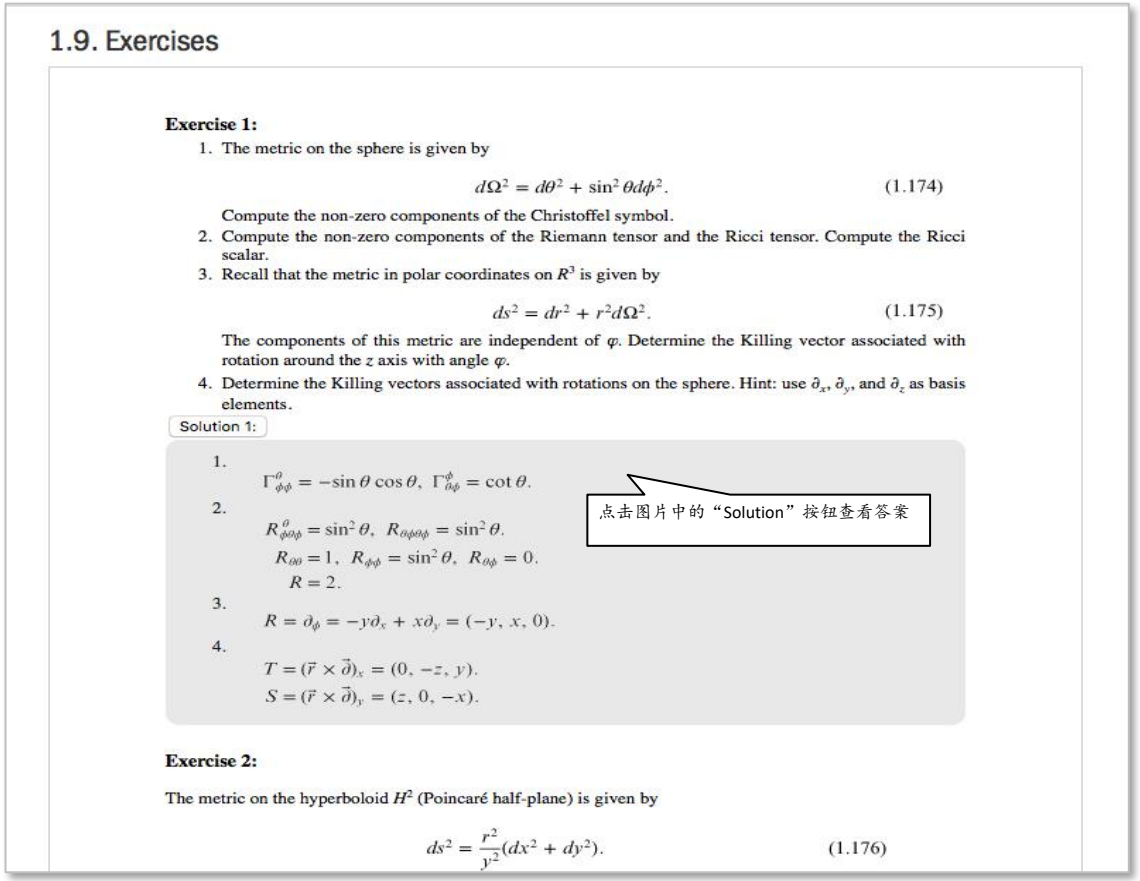
点击图片下方“开始交互”按钮，即可对图片进行个性化操作


Habitable zones in multiple star systems
Binary
Multiple
Render
Clear
Star A
Temperature 5780 K
Luminosity 1.0 Lsolar
Mass 1.0 Msolar
Position X 4 AU
Position Y 0.0 AU
Star B
Temperature 3600 K
Luminosity 0.3 Lsolar
Mass 0.104 Msolar
Position X 0.5 AU
Position Y 1 AU
Star C
Temperature 8700 K
Luminosity 4 Lsolar
Mass 1.5 Msolar
Position X 3 AU
Position Y 2 AU
Parameters
Model Kopparapu et al. (
Plot region min/max X/Y
Minimum X -5 AU
Maximum X 5 AU
Minimum Y -5 AU
Maximum Y 5 AU
Aspect Ratio 1
Resolution 0.05 AU
Center on center of mass
Keep history
Render
Distance [AU]
Distance [AU]
Star Temperature Luminosity Mass X Y
A 5780 K 1 Lsolar 1 Msolar 4 AU 0 AU
B 3600 K 0.3 Lsolar 0.104 Msolar 0.5 AU 1 AU
C 8700 K 4 Lsolar 1.5 Msolar 3 AU 2 AU
Download as PNG
Download as PDF


Distance [AU]
Distance [AU]
4
3
2
1
0
−1
−2
−3
−4
−4
−3
−2
−1
0
1
2
3
4

平台功能亮点

交互问答 - 习题



1.9. Exercises

Exercise 1:

1. The metric on the sphere is given by

$$d\Omega^2 = d\theta^2 + \sin^2\theta d\phi^2. \tag{1.174}$$

Compute the non-zero components of the Christoffel symbol.

2. Compute the non-zero components of the Riemann tensor and the Ricci tensor. Compute the Ricci scalar.
3. Recall that the metric in polar coordinates on R^3 is given by

$$ds^2 = dr^2 + r^2 d\Omega^2. \tag{1.175}$$

The components of this metric are independent of φ. Determine the Killing vector associated with rotation around the z axis with angle φ.

4. Determine the Killing vectors associated with rotations on the sphere. Hint: use ∂_x, ∂_y, and ∂_z as basis elements.

Solution 1:

1.
$$\Gamma^{\theta}_{\phi\phi} = -\sin\theta\cos\theta,\ \Gamma^{\phi}_{\theta\phi} = \cot\theta.$$

2.
$$R^{\theta}_{\phi\theta\phi} = \sin^2\theta,\ R_{\theta\phi\theta\phi} = \sin^2\theta.$$
$$R_{\theta\theta} = 1,\ R_{\phi\phi} = \sin^2\theta,\ R_{\theta\phi} = 0.$$
$$R = 2.$$

3.
$$R = \partial_\phi = -y\partial_x + x\partial_y = (-y, x, 0).$$

4.
$$T = (\vec{r}\times\vec{\partial})_x = (0, -z, y).$$
$$S = (\vec{r}\times\vec{\partial})_y = (z, 0, -x).$$

点击图片中的“Solution”按钮查看答案

Exercise 2:

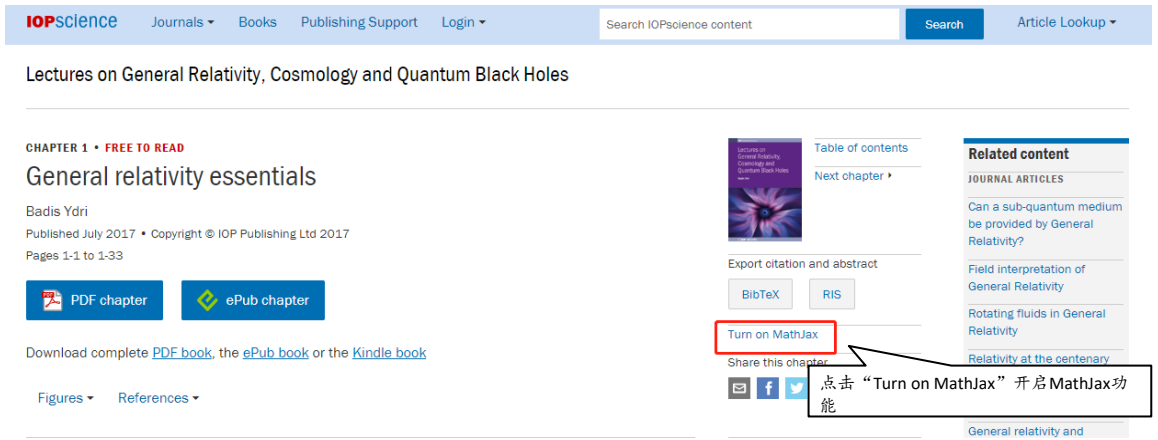
The metric on the hyperboloid H^2 (Poincaré half-plane) is given by

$$ds^2 = \frac{r^2}{y^2}(dx^2 + dy^2). \tag{1.176}$$

IOP Publishing | science first

平台功能亮点

导出公式



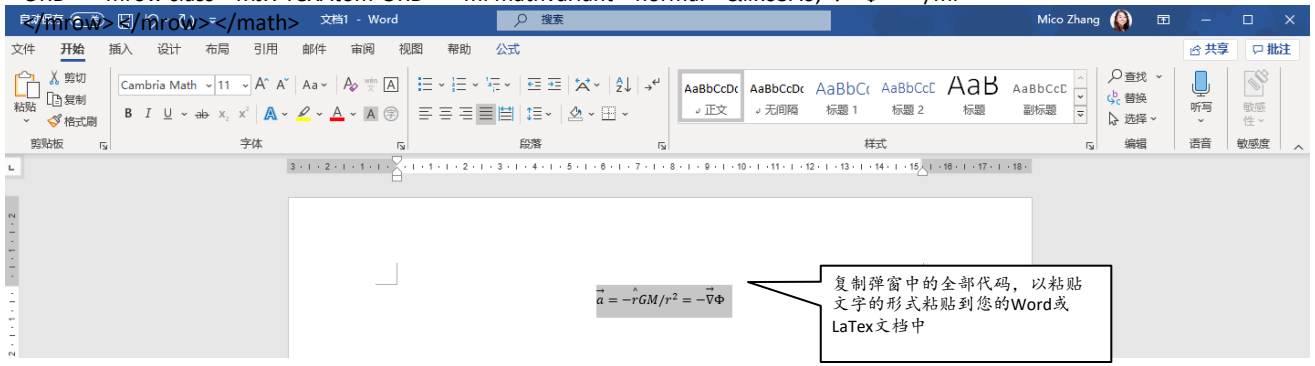
1.6.1. Tidal gravitational forces

Let us first start by describing tidal gravitational forces in Newtonian physics. The force of gravity exerted by an object of mass M on a particle of mass m a distance r away is $\vec{F} = -\hat{r}GMm/r^2$, where $\hat{r}$ is the unit vector pointing from M to m and r is the distance between the center of M and m. The corresponding acceleration is $\vec{a} = -\hat{r}GM/r^2 = -\vec{\nabla}\Phi, \Phi = -GM/r$. We assume now that the mass m is spherical of radius Δr. The distance [illegible] of M and [illegible]ter of m is r. The force of gravity exerted by the mass M on a par[illegible]stan[illegible] the centers of M and m is given by $\vec{F} = -$[illegible]^2. The corresponding acceleration is

$$\vec{a} = -\hat{r}GM\frac{1}{(r+\Delta r)^2} = -\hat{r}GM\frac{1}{r^2} + \cdots \qquad (1.99)$$

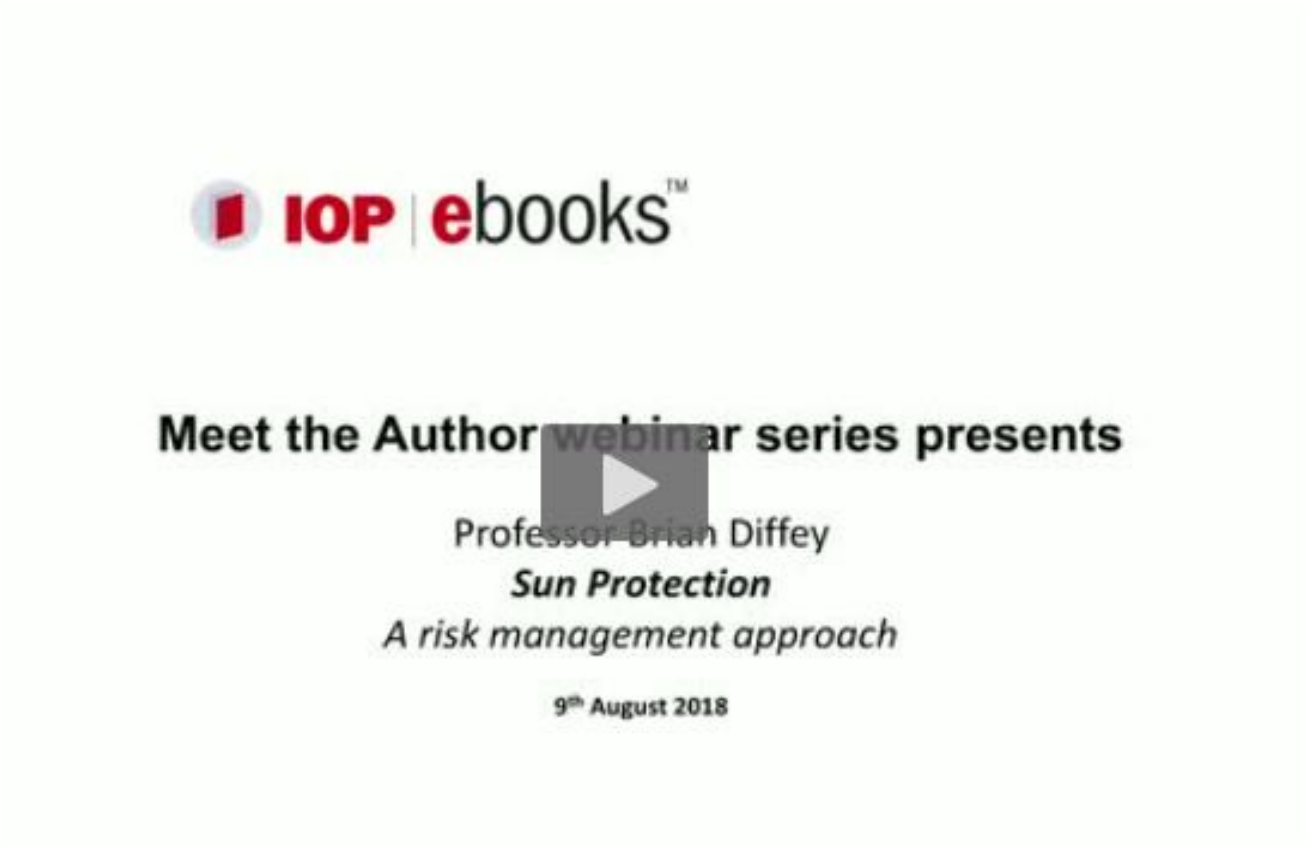
平台功能亮点

<math xmlns="http://www.w3.org/1998/Math/MathML"> <mrow class="MJX-TeXAtom-ORD">
<mover> <mi>a</mi> <mo stretchy="false">→<!-- → --></mo> </mover> </mrow>
<mo>=</mo> <mo>−<!-- − --></mo> <mrow class="MJX-TeXAtom-ORD"> <mover>
<mi>r</mi> <mo stretchy="false">^<!-- ^ --></mo> </mover> </mrow> <mrow class="MJX-
TeXAtom-ORD"> <mi>G</mi> <mi>M</mi> </mrow> <mrow class="MJX-TeXAtom-ORD">
<mo>/</mo> </mrow> <msup> <mrow class="MJX-TeXAtom-ORD"> <mi>r</mi> </mrow> <mrow
class="MJX-TeXAtom-ORD"> <mn>2</mn> </mrow> </msup> <mo>=</mo> <mo>−<!-- − --
></mo> <mrow class="MJX-TeXAtom-ORD"> <mover> <mrow class="MJX-TeXAtom-ORD"> <mrow
class="MJX-TeXAtom-ORD"> <mi mathvariant="normal">∇<!-- ∇ --></mi> </mrow> </mrow>
<mo stretchy="false">→<!-- → --></mo> </mover> </mrow> <mrow class="MJX-TeXAtom-
ORD"> <mrow class="MJX-TeXAtom-ORD"> <mi mathvariant="normal">Φ<!-- Φ --></mi>
</mrow> </mrow></math>



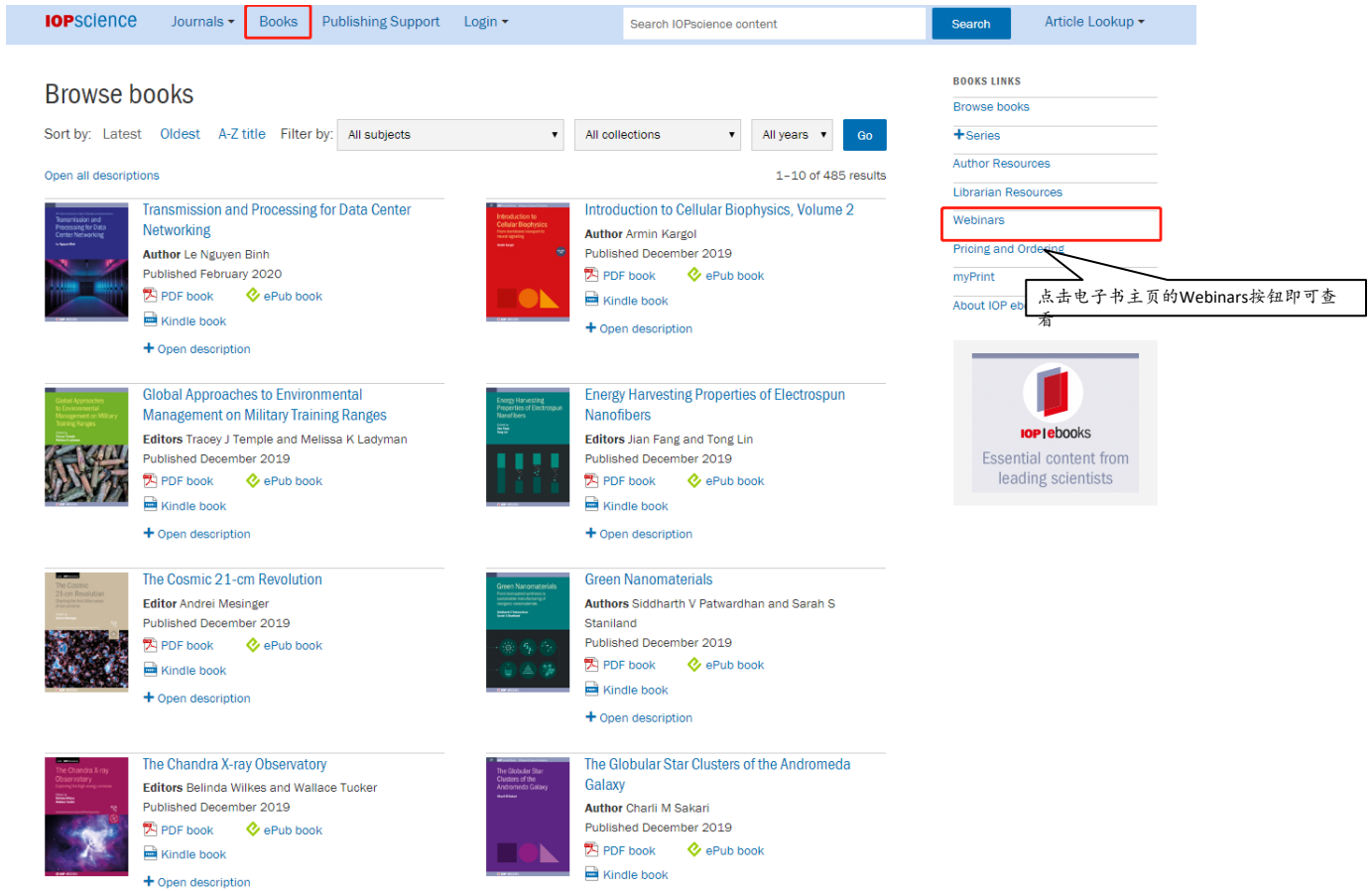
平台功能亮点

作者直播 **Online webinar**



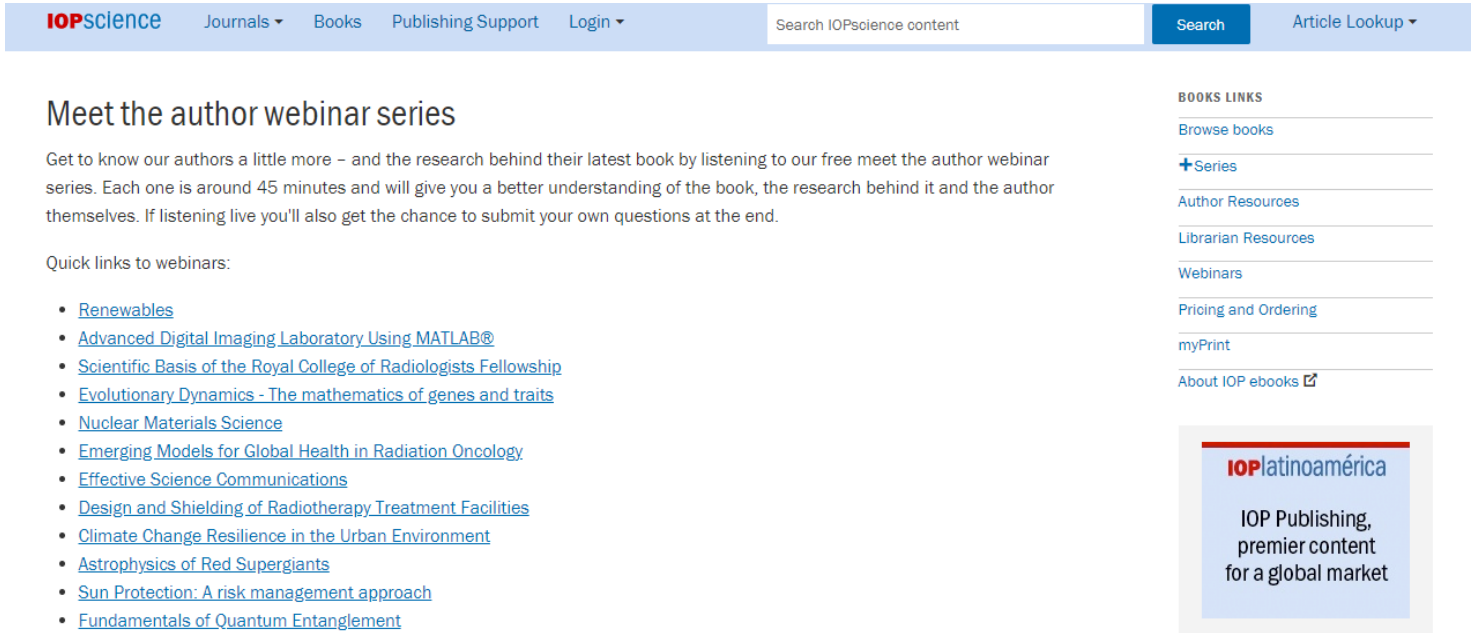
IOP Publishing | science first

作者直播 Online webinar

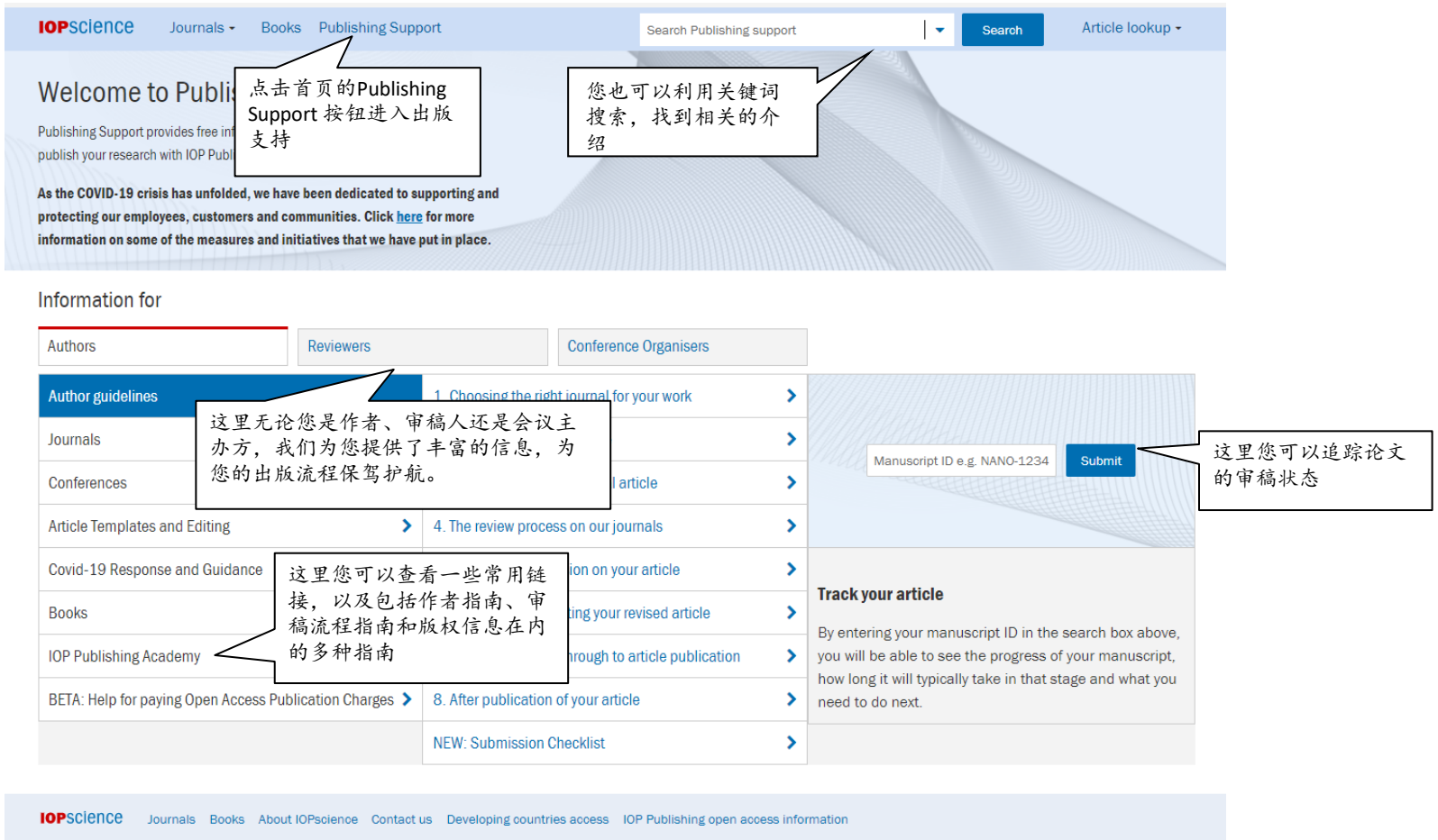


IOP Publishing | science first

作者直播 Online webinar



出版支持


IOPscience
Journals
Books
Publishing Support
Search Publishing support
Search
Article lookup
点击首页的Publishing Support 按钮进入出版支持
您也可以利用关键词搜索，找到相关的介绍
Welcome to Publi
Publishing Support provides free inf
publish your research with IOP Publ
As the COVID-19 crisis has unfolded, we have been dedicated to supporting and protecting our employees, customers and communities. Click here for more information on some of the measures and initiatives that we have put in place.
Information for
Authors
Reviewers
Conference Organisers
Author guidelines
Journals
Conferences
Article Templates and Editing
Covid-19 Response and Guidance
Books
IOP Publishing Academy
BETA: Help for paying Open Access Publication Charges
这里无论您是作者、审稿人还是会议主办方，我们为您提供了丰富的信息，为您的出版流程保驾护航。
1. Choosing the right journal for your work
l article
4. The review process on our journals
ion on your article
ting your revised article
rough to article publication
8. After publication of your article
NEW: Submission Checklist
这里您可以查看一些常用链接，以及包括作者指南、审稿流程指南和版权信息在内的多种指南
Manuscript ID e.g. NANO-1234
Submit
这里您可以追踪论文的审稿状态
Track your article
By entering your manuscript ID in the search box above, you will be able to see the progress of your manuscript, how long it will typically take in that stage and what you need to do next.
IOPscience
Journals
Books
About IOPscience
Contact us
Developing countries access
IOP Publishing open access information

更多关于IOPscience的信息

- 视频指南
  - http://iopscience.iop.org/page/tutorials

- 联络我们
  - China@ioppublishing.org


Q
A


THANKS!

IOP Publishing | science first

英国物理学会北京办公室

IOP内容平台

http:iopscience.iop.org

IOP中国网站

http://china.iop.org

IOP官方微博

请搜索“IOP中国”

IOP官方微信

请关注公众号：IOP 出版社

IOP编辑联系方式

china@ioppublishing.org