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GUIA DO usuário



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1



REGISTRO INDIVIDUAL INSTITUCIONAL

1

Para fazer login, clique na opção “Log in” na página inicial.

The screenshot shows the homepage of the Physical Review Journals website. At the top, there is a navigation bar with links for "Journals", "Physics Magazine", "Help/Feedback", and a search bar containing "Journal, vol, page, DOI, etc.". To the right of the search bar is a green "Log in" button. Below the navigation bar, the text "PHYSICAL REVIEW JOURNALS" is displayed, followed by "Published by the American Physical Society". A horizontal menu bar below this includes links for "Journals", "Authors", "Referees", "Collections", "Browse", "Search", "Press", and a feed icon.

2

Selecione como gostaria de fazer login, como cliente atual, novo usuário ou por instituição.

Log In

Username

Password

Log In

Cancel



[Forgot your username/password?](#)

[Create an account](#)

The screenshot shows a login interface for institutional subscribers. At the top, it says "PHYSICAL REVIEW JOURNALS" and "Published by the American Physical Society". Below this is a horizontal menu bar with links for "Journals", "Authors", "Referees", "Collections", "Browse", "Search", "Press", and a feed icon. A large white box labeled "Institutional Subscribers - Username/Password Log in" is centered. Inside this box, there is a message: "Please log in below if your institution has provided you with a username/password." Below the message are two input fields: "Username" and "Password", each with a corresponding "Log in" button at the bottom. There is also a "Cancel" button to the right of the "Log In" button.

2

COMO POSSO PESQUISAR ?



1

Digite na barra de pesquisa a palavra-chave, o nome do periódico, o DOI ou outras informações que deseja usar para sua pesquisa.

The screenshot shows the homepage of Physical Review Journals. At the top, there is a navigation bar with links for Journals, Physics Magazine, Help/Feedback, and a search bar containing "Journal, vol, page, DOI, etc." with a magnifying glass icon. Below the navigation bar, the text "PHYSICAL REVIEW JOURNALS" and "Published by the American Physical Society" is displayed. The main content area features a "PRL ON THE COVER" section with an image of a plasma-discharge capillary and the title "Guiding of Charged Particle Beams in Curved Plasma-Discharge Capillaries". There is also a sidebar with buttons for "SUBMIT YOUR ARTICLE", "BECOME A REFEREE", and "Email Alerts".

2

Clique no ícone da lupa para iniciar a pesquisa. Os periódicos podem ser acessados na lista que aparece quando você clica em "Journals".

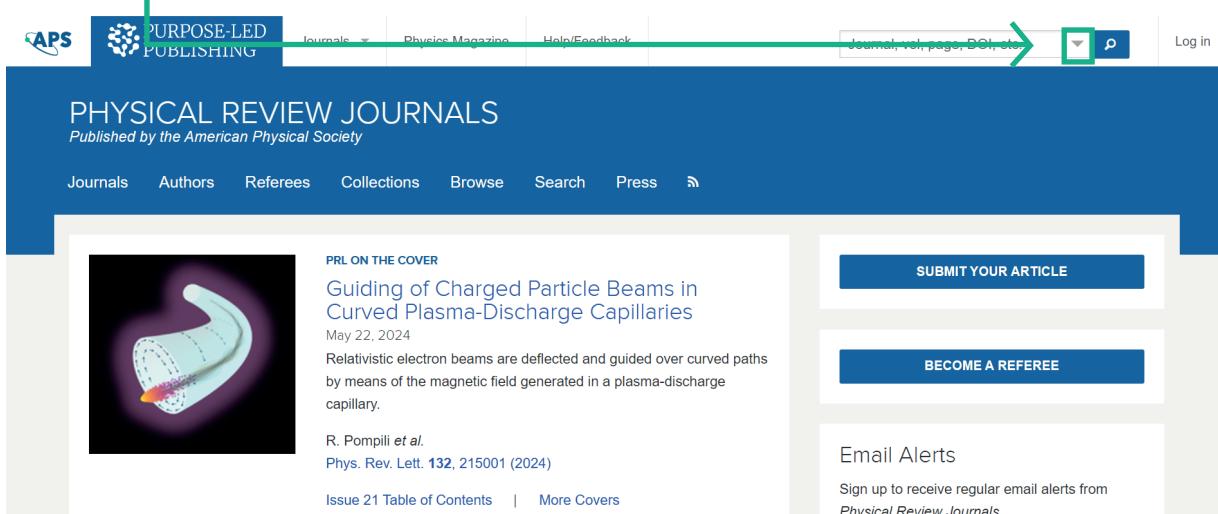
This screenshot is identical to the one above, showing the Physical Review Journals homepage. However, a green arrow points to the magnifying glass icon in the search bar, indicating where to click to start the search process.

3

PESQUISA AVANÇADA

1

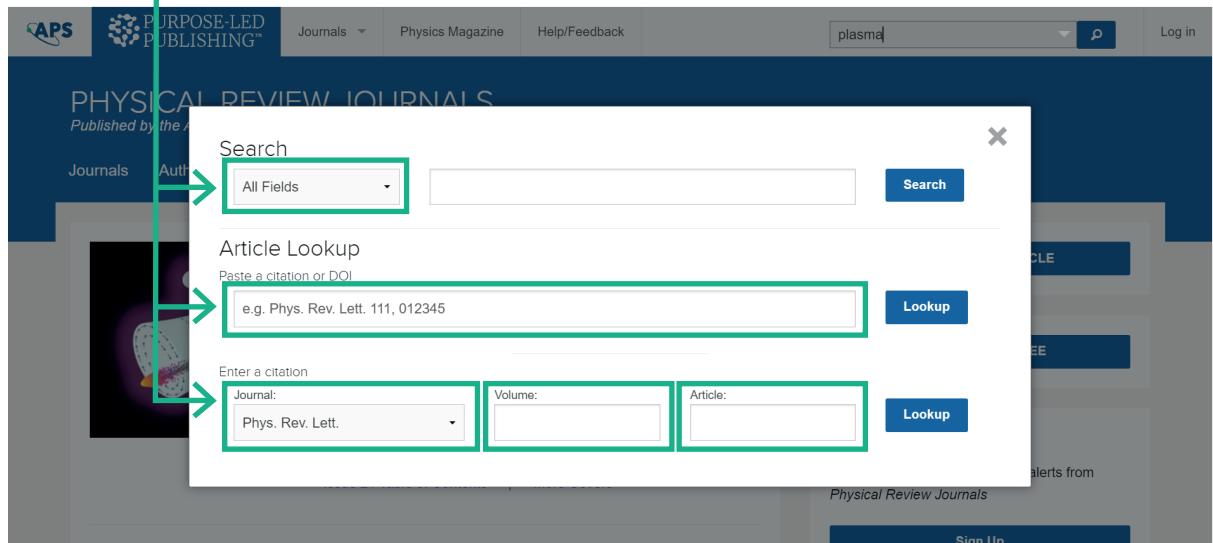
Para realizar uma pesquisa avançada, pressione a seta na barra de pesquisa.



The screenshot shows the homepage of Physical Review Journals. At the top, there's a navigation bar with links for Journals, Authors, Referees, Collections, Browse, Search, Press, and Help/Feedback. Below the navigation is a search bar with a dropdown arrow and a magnifying glass icon. The main content area features a "PRL ON THE COVER" section with an image of a plasma-discharge capillary and the title "Guiding of Charged Particle Beams in Curved Plasma-Discharge Capillaries". There are also buttons for "SUBMIT YOUR ARTICLE" and "BECOME A REFEREE". On the right, there's a "Email Alerts" section with a "Sign up" link.

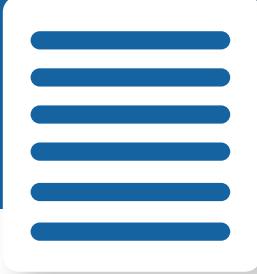
2

Selecione os filtros que deseja usar para sua pesquisa e, quando estiver pronto, clique no botão “search” (pesquisar).



This screenshot shows the search interface of the Physical Review Journals website. A modal window is open, containing a "Search" field with a dropdown menu set to "All Fields", an "Article Lookup" field with placeholder text "e.g. Phys. Rev. Lett. 111, 012345", and three dropdown fields for "Journal" (set to "Phys. Rev. Lett."), "Volume", and "Article". Each of these three fields has a green arrow pointing to it, indicating they are filter options. The background of the page is dark blue, and the search interface is white with blue buttons for "Search", "Lookup", and "Sign Up".

4



COMO ENCONTRAR

1

Localize o artigo de seu interesse.

Results / 1-20 of 54,899
You searched for **plasma**

Sort

Results Per Page

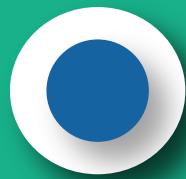
PhySH Concept ALL (54,899) Optics & lasers (2,635) Relativistic heavy-ion collisions (2,147) Quantum field theory (1,749) 3-dimensional systems (1,602) Optical & microwave phenomena (1,586)

PR 79 citations
Plasma-Electron Resonance, Plasma Resonance and Plasma Shape
Lewi Tonks
Phys. Rev. **38**, 1219 (1931) - Published 15 September 1931
[Show Abstract +](#)

PRE 17 citations
Plasma rotation in a plasma generator
H. Meyer, S. Klose, E. Pasch, and G. Fussmann
Phys. Rev. E **61**, 4347 (2000) - Published 1 April 2000
[Show Abstract +](#)

PR 59 citations
Effects of Plasma Boundaries in Plasma Oscillations
D. Bohm and E. P. Gross
Phys. Rev. **79**, 992 (1950) - Published 15 September 1950
[Show Abstract +](#)

5



USO DE FILTROS

1

Para uma pesquisa melhor, filtre por resultados, tipos de artigos, categorias, revista, data etc.

<div style="border: 2px solid #00AEEF; padding: 5px; margin-bottom: 10px;">Sort</div> <div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin-bottom: 10px;">Most Relevant</div> <div style="border: 2px solid #00AEEF; padding: 5px; margin-bottom: 10px;">Results Per Page</div> <div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin-bottom: 10px;">10</div> <div style="border: 2px solid #00AEEF; padding: 5px; margin-bottom: 10px;">PhySH Concept</div> <div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin-bottom: 10px;"> <input checked="" type="checkbox"/> ALL (54,899) <input type="checkbox"/> Optics & lasers (2,635) <input type="checkbox"/> Relativistic heavy-ion collisions (2,147) <input type="checkbox"/> Quantum field theory (1,749) <input type="checkbox"/> 3-dimensional systems (1,602) <input type="checkbox"/> Optical & microwave phenomena (1,586) <input type="checkbox"/> Cosmology (1,542) </div> <div style="border: 2px solid #00AEEF; padding: 5px; margin-bottom: 10px;">PhySH Discipline</div> <div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin-bottom: 10px;"> <input checked="" type="checkbox"/> ALL (54,899) <input type="checkbox"/> Condensed Matter, Materials & Applied Physics (5,413) <input type="checkbox"/> Atomic, Molecular & Optical (3,387) <input type="checkbox"/> Particles & Fields (3,300) <input type="checkbox"/> Plasma Physics (2,736) <input type="checkbox"/> Gravitation, Cosmology & Astrophysics (2,536) </div> <div style="border: 2px solid #00AEEF; padding: 5px; margin-bottom: 10px;">Category</div> <div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin-bottom: 10px;"> <input checked="" type="checkbox"/> ALL (54,899) <input type="checkbox"/> Open Access (6,012) <input type="checkbox"/> Editors' Suggestion (1,637) <input type="checkbox"/> Featured in Physics (607) <input type="checkbox"/> Milestone (9) </div>	<div style="border: 2px solid #00AEEF; padding: 5px; margin-bottom: 10px;">Category</div> <div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin-bottom: 10px;"> <input checked="" type="checkbox"/> ALL (54,899) <input type="checkbox"/> Open Access (6,012) <input type="checkbox"/> Editors' Suggestion (1,637) <input type="checkbox"/> Featured in Physics (607) <input type="checkbox"/> Milestone (9) </div> <div style="border: 2px solid #00AEEF; padding: 5px; margin-bottom: 10px;">Article Type</div> <div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin-bottom: 10px;"> <input checked="" type="checkbox"/> ALL (54,899) <input type="checkbox"/> Article (37,341) <input type="checkbox"/> Letter (12,696) <input type="checkbox"/> Rapid Communication (1,993) <input type="checkbox"/> Brief Report (1,364) <input type="checkbox"/> Review (438) </div> <div style="border: 2px solid #00AEEF; padding: 5px; margin-bottom: 10px;">Journal</div> <div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin-bottom: 10px;"> <input checked="" type="checkbox"/> ALL (54,899) <input type="checkbox"/> Phys. Rev. Lett. (12,557) <input type="checkbox"/> Phys. Rev. B (9,942) <input type="checkbox"/> Phys. Rev. E (7,975) <input type="checkbox"/> Phys. Rev. D (7,792) <input type="checkbox"/> Phys. Rev. A (7,442) <input type="checkbox"/> Phys. Rev. C (3,271) <input type="checkbox"/> Phys. Rev. Applied (984) </div> <div style="border: 2px solid #00AEEF; padding: 5px; margin-bottom: 10px;">Date</div> <div style="border: 1px solid #ccc; padding: 5px; width: fit-content; margin-bottom: 10px;"> Any time Past Week Past Month Past Year Custom Range </div>
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6

RECUPERAR INFORMAÇÕES

BAIXAR PDF

1

Selecione a opção “PDF” no menu superior.

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Light propagation in a plasma on Kerr spacetime. II. Plasma imprint on photon orbits

Volker Perlick and Oleg Yu. Tsupko
Phys. Rev. D **109**, 064063 – Published 21 March 2024

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ABSTRACT

In this paper, light propagation in a pressure-free nonmagnetized plasma on Kerr spacetime is considered, which is a continuation of our previous study [V. Perlick and O. Y. Tsupko, Light propagation in a plasma on Kerr spacetime: Separation of the Hamilton-Jacobi equation and calculation of the shadow, *Phys. Rev. D* **95**, 104003 (2017)]. It is assumed throughout that the plasma density is of the form that allows for the separability of the Hamilton-Jacobi equation for light rays, i.e., for the existence of a Carter constant. Here we focus on the analysis of different types of orbits and find several peculiar phenomena which do not exist in the vacuum case. We start with studying spherical orbits, which are contained in a coordinate sphere $r = \text{constant}$, and conical orbits, which are contained in a coordinate cone $\theta = \text{constant}$. In particular, it is revealed that in the ergoregion in the presence of a plasma there can exist two different spherical light rays propagating through the same point. Then we study circular orbits and demonstrate that,

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PHYSICAL REVIEW D **109**, 064063 (2024)

Light propagation in a plasma on Kerr spacetime. II. Plasma imprint on photon orbits

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In this paper, light propagation in a pressure-free nonmagnetized plasma on Kerr spacetime is considered, which is a continuation of our previous study [V. Perlick and O. Y. Tsupko, Light propagation in a plasma on Kerr spacetime: Separation of the Hamilton-Jacobi equation and calculation of the shadow, *Phys. Rev. D* **95**, 104003 (2017)]. It is assumed throughout that the plasma density is of the form that allows for the separability of the Hamilton-Jacobi equation for light rays, i.e., for the existence of a Carter constant. Here we focus on the analysis of different types of orbits and find several peculiar phenomena which do not exist in the vacuum case. We start with studying spherical orbits, which are contained in a coordinate sphere $r = \text{constant}$, and conical orbits, which are contained in a coordinate cone $\theta = \text{constant}$. In particular, it is revealed that in the ergoregion in the presence of a plasma there can exist two different spherical light rays propagating through the same point. Then we study circular orbits and demonstrate that, contrary to the vacuum case, circular orbits can exist off the equatorial plane in the domain of outer communication of a Kerr black hole. Necessary and sufficient conditions for that are formulated. We also find a compact equation for circular orbits in the equatorial plane of the Kerr metric, with several examples developed. Considering the light deflection in the equatorial plane, we derive a new exact formula for the deflection angle which has the advantage of being directly applicable to light rays both inside and outside of the ergoregion. Remarkably, the possibility of a nonmonotonic behavior of the deflection angle as a function of the impact parameter is demonstrated in the presence of a nonhomogeneous plasma. Furthermore, in order to separate the effects of the black hole spin from the effects of the plasma, we investigate weak deflection gravitational lensing. We also add some further comments to our discussion of

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NOTIFICAÇÕES

Para ativar as notificações de uma revista, role até o artigo e pressione o botão “sign up” (assinar).

1

Sign up to receive regular email alerts from *Physical Review D*

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2

Após clicar no botão, digite o endereço de e-mail pessoal em que deseja receber os alertas e selecione a revista de seu interesse.

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