



Access Science
to najpopularniejsza
multimedialna
baza wiedzy - encyklopedia
nauki i technologii dla:

- studentów
- kadry dydaktycznej
- Inżynierów
- naukowców

Wielokrotnie nagradzana w
kategorii **STEM** „teaching and
learning”

STEM education:

- Science
- Technology
- Engineering
- Mathematics

ACCESS Science
The Science Authority

Off-Campus Access
McGraw-Hill Education (organization)
Sign Out

Home Articles Briefings Biographies Media Projects For Faculty For Admins

Let AccessScience work harder for you!

my ACCESS Science
Your personal account
Off-Campus Access

Search AccessScience Advanced Search ?
I'm looking for... Search

Agriculture, Forestry & Soils
Anthropology & Archeology
Astronomy & Space Science
Biology & Biomedicine
Botany

Chemistry
Computing & Information Technology
Earth Science
Engineering & Materials
Environmental Science

Food Science & Technology
Health Sciences
Mathematics
Military Science
Navigation

Paleontology
Physics
Psychiatry & Psychology
Science Theory & Philosophy
Zoology

Browse Articles: 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 #

Explore

Sargassum weed: This free-floating algae is unexpectedly piling up along Caribbean shorelines.
More Briefings

Neuromusicology: How does listening to music influence your brain's functioning?
More Articles in Neuroscience

Trending on AccessScience

Heart regeneration
Invasive species
Robotic surgery
Aorta
Electromagnetism
Problem solving (psychology)
Collision (physics)
How Anesthesia Works
Plant-water relations
Osmosis

Do You Know?

The screenshot displays the ACCESS Science website interface. At the top, there are navigation tabs for Home, About, Articles, and Biography. Below the tabs is the McGraw Hill Education logo and a search bar labeled 'Search AccessScience' with the placeholder text 'I'm looking for...'. To the right of the search bar is a list of subject categories: Agriculture, Forestry & Soils; Anthropology & Archeology; Astronomy & Space Science; Biology & Biomedicine; Botany; Chemistry; Computing; Technology; Earth Science; Engineering; and Environment. Below the search bar is a 'Browse Articles:' section with buttons for A, B, C, D, E, and F. The main content area features a grid of article thumbnails. Each thumbnail includes an image, a title, a brief description, and a 'More' link. The thumbnails shown are: 'Sargassum weed' (a beach with seaweed), 'Neuromusicology' (two glowing human heads), 'Susan Trumbore' (a scientist in a lab), 'Methane hydrate structure' (a 3D molecular model), and 'How strong are spider webs?' (a spider on a web). On the right side of the interface, there is a 'Trending on AccessScience' section with a list of topics: Heart regeneration, Invasive species, Robotic surgery, Aorta, Electromagnetism, Problem solving (psychology), Collision (physics), How Anesthesia Works, Plant-water relations, and Osmosis. Below this is a 'Do You Know?' section with a question about spider webs and a 'Reveal answer' button.

Głównym **źródłem**, z którego dostarczane są informacje to

McGraw-Hill Encyclopedia of Science and Technology (ed.10)

- tworzą ją i uzupełniają **nobliści** (42 osoby)

- na bieżąco **aktualizowana** i uzupełniana, rozszerzana o nowe pojęcia i zagadnienia

Główne dziedziny bazy:

- Inżynieria & Materiałoznawstwo (9 460)
- Fizyka (5 428)
- Biologia i biomedycyna (4 179)
- Nauki o Ziemi (3 263)
- Chemia (2 606)
- Zoologia (2 443)
- Nauki o zdrowiu (1 801)
- Astronomia & Nauki pokrewne (1 683)
- Botanika (1 676)
- Rolnictwo, leśnictwo i gleboznawstwo (1 298)
- Paleontologia (1 286)
- Informatyka i technologie komputerowe (1 233)
- Nauki o środowisku (907)
- Matematyka (686)
- Psychiatria i psychologia (629)
- Nauka i technologia żywności (467)
- Antropologia i archeologia (449)
- Nawigacja (233)
- Nauki o wojskowości (199)
- Teoria i filozofia nauki (108)

Search AccessScience Advanced Search ? [Browse Articles...](#)

I'm looking for... **Search** **By Topic**

AccessScience > Articles

Search Results

Save search

32 203 results

Refine this search

Content Type

- All Content (32 203)
- Image (19 330)
- Article (8 710)
- Biography (2 908)
- News (518)
- Video / Animation (415)
- Briefing (288)
- Project (21)
- Image Gallery (13)

Topic

- All Topics (32 203)
- Engineering & Materials (9 468)
- Physics (5 435)
- Biology & ...

1 2 3 4 Next »

An article from Science News Sep 2018 **+ SAVE**
A new hydrogen-rich compound may be a record-breaking superconductor

An article from Science News Sep 2018 **+ SAVE**
Wildfires make their own weather, and that matters for fire management

An article from Science News Aug 2018 **+ SAVE**
Artificial intelligence could improve predictions for where quake aftershocks will hit

An article from Science News Aug 2018 **+ SAVE**
An elusive Higgs boson decay has finally been spotted

my ACCESS Science
Your personal account

- Ponad **8700** artykułów online z *Encyclopedia of Science & Technology* (ed. 10);
- Aktualizacje naukowe z *Yearbooks of Science & Technology*;
- Ponad 115 000 + definicji z *Dictionary of Scientific and Technical Terms*;
- **18 000** ilustracji, grafik oraz bibliografii zawierających ponad 28 000 cytowań;
- Kontent dostarczany przez ponad 5000 naukowców w tym 42 noblistów;
- Ponad **3 000** biografii najbardziej znanych naukowców zaczerpniętych z *Hutchinson Dictionary of Scientific Biography*;

The screenshot displays the AccessScience website. At the top, the logo 'ACCESS Science' is visible, along with 'The Science Authority' and 'McGraw-Hill Education' branding. A navigation menu includes 'Home', 'Articles', 'Briefings', 'Biographies', 'Media', 'Projects', 'For Faculty', and 'For Admins'. A search bar is present with the text 'I'm looking for...' and a 'Search' button. Below the search bar, there are tabs for 'Briefings A-Z' and 'Briefings by Topic'. A list of briefings is shown, including titles like 'Active traffic management: adaptive traffic signal control', 'Adaptations of the Joshua tree (Yucca brevifolia)', and 'Air pollution and exercise'. On the right side, there is a 'my ACCESS Science' section with a link to 'Your personal account'.



Wyszukiwanie podstawowe

Przeglądanie bazy w/g

- wyszukiwanych haseł

- dziedzin nauki

- artykuły
- streszczenia
- biografie
- newsy z mediów
- gotowe projekty

Search AccessScience Advanced Search ?

I'm looking for...

Agriculture, Forestry & Soils	Chemistry	Food Science & Technology	Paleontology
Anthropology & Archeology	Computing & Information Technology	Health Sciences	Physics
Astronomy & Space Science	Earth Science	Mathematics	Psychiatry & Psychology
Biology & Biomedicine	Engineering & Materials	Military Science	Science Theory & Philosophy
Botany	Environmental Science	Navigation	Zoology

Browse Articles: [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](#) <#>

Przeglądanie artykułów tematycznie lub alfabetycznie

The screenshot shows the ACCESS Science website interface. At the top, there is a navigation menu with tabs: Home, About, **Articles** (highlighted with a red box), Biographies, Media, For Faculty, and For Admins. Below the menu is a search bar with the text "Search AccessScience" and a "Browse Articles" link. The search bar contains the placeholder text "I'm looking for..." and a "Search" button with a red arrow. To the right of the search bar is a "Select Topic" dropdown menu. Below the search bar, the breadcrumb "AccessScience > Articles > A" is visible. The main heading is "Articles". Below this, there are two tabs: **Articles A-Z** (highlighted with a red box) and "Articles by Topic". Below the tabs is an alphabetical navigation bar with letters A through Z and a hash symbol, all highlighted with a red box. The letter 'A' is currently selected. To the right of the navigation bar is a "my ACCESS Science" logo and a text box that says "Save articles, images, searches and more!". Below the navigation bar, a list of articles is displayed under the heading "A". The list includes: A15 phases - [Article], Aardvark - [Article], Abaca - [Article], Abacus - [Article], ABC lipid transporters - [Article], Abdomen - [Article], Aberration (optics) - [Article], Aberration of light - [Article], Abrasive - [Article], Abscissic acid - [Article], Abscission - [Article], Absolute zero - [Article], Absorbable orthopedic implants - [Research Review], and Absorption - [Article]. On the left side of the article list, there is a vertical navigation menu with buttons for "A15 - Adap", "Adap - Airc", "Airc - Ambi", and "Ambi - Anim".

Przeglądanie artykułów tematycznie

The screenshot displays the ACCESS Science website interface. At the top, a navigation menu includes 'Home', 'About', 'Articles' (highlighted with a red box), 'Biographies', 'Media', 'For Faculty', and 'For Admins'. Below the menu is a search bar with the text 'I'm looking for...' and a 'Search' button. To the right of the search bar is a 'Browse Articles' section with a 'Select Topic' dropdown menu. The main content area features a breadcrumb trail: 'AccessScience > Articles > Earth Science > Earth science - general'. The 'Articles' section is highlighted with a blue banner. Below this, there are two tabs: 'Articles A-Z' and 'Articles by Topic' (highlighted with a red box). The 'Articles by Topic' section shows a 'Topic: Earth Science' header. On the left, a 'Select Topic' dropdown is set to 'Earth science - general' (highlighted with a red box). Below this, a list of subtopics is shown, including 'Geochemistry', 'Geology and geodesy', 'Geophysics', and 'Hydrology and glaciology'. The main content area lists several subtopics under 'Earth science - general', such as 'Earth - [Article]', 'Earth sciences - [Article]', 'Environmental geology - [Article]', 'Geology - [Article]', 'Geomorphology - [Article]', 'Hyperspectral remote sensing (mapping) - [Research Review]', 'Landslide detection and modeling - [Briefing]', 'Remote sensing - [Article]', 'Supercontinent - [Article]', and 'Topographic surveying and mapping - [Article]'. On the right side, there is a 'my ACCESS Science' logo and a 'Trending in this Topic' section listing 'Argillaceous rocks', 'Contact aureole', 'Topographic surveying and mapping', 'Seamount and guyot', and 'Blueschist'. A 'Back to Top' button is located at the bottom right of the main content area.

Przeglądanie biografii imiennie

Home About Articles **Biographies** Media For Faculty For Admins

Search AccessScience Advanced Search ? Browse Articles

I'm looking for...

AccessScience > Biographies > A

Biographies

Biographies A-Z Biographies by Topic

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

A

- Aalto, Alvar (Hugo Alvar Henrik) (1898–1976)
- Abbe, Ernst (1840–1905)
- Abel, Neils Henrik (1802–1829)
- Abercrombie, (Leslie) Patrick (1879–1957)
- Abetti, Giorgio (1882–1982)
- Abrikosov, Alexei Alexeyevich (1928–)
- Ackerman, James S(loss) (1919–)
- Ackerman, Nathan W(ard) (1909–1971)
- Adam (architects) (Adam)
- Adams, John Couch (1819–1892)
- Adams, Robert McC(ormick) (1926–)
- Adams, Walter Sydney (1876–1956)
- Addams, Jane (1860–1935)
- Addison, Thomas (1793–1860)
- Adleman, Leonard (1945–)
- Adler, Alfred (1870–1937)
- Adler, Dankmar (1844–1900)
- Adrian, Edgar Douglas (1889–1977)
- Agassiz, (Jean) Louis Rodolphe (1807–1873)
- Agnesi, Maria Gaetana (1718–1799)
- Agnon, Shmuel Yosef (1888–1970)
- Agre, Peter (1949–)

Nobel Prize Winners
This world-renowned prize recognizes outstanding contributions.
View winners in:
Physics
Chemistry
Physiology or Medicine
Economic Sciences
Literature
Peace

Fields Medal Winners
Awarded to young mathematicians, the Fields Medal is the world's most prestigious mathematics prize.
View Fields Medal Winners

Przeglądanie biografii tematycznie

The screenshot shows the ACCESS Science website interface. The top navigation bar includes links for Home, About, Articles, Biographies, Media, For Faculty, and For Admins. The 'Biographies' link is highlighted with a red box. Below the navigation bar is a search bar with the text 'I'm looking for...' and a 'Search' button. To the right of the search bar is a 'Browse Articles' section with a 'Select Topic' dropdown menu. The main content area features a large banner for 'Biographies' with a background image of a dinosaur and a mouse. Below the banner, there are two buttons: 'Biographies A-Z' and 'Biographies by Topic', with the latter highlighted by a red box. A red arrow points from the title 'Przeglądanie biografii tematycznie' to this button. Below the buttons, there is a red banner with the text 'Topic: Agriculture, Forestry & Soils'. A dropdown menu is open, showing a list of topics. The 'Agriculture, Forestry & Soils' option is selected and highlighted. The dropdown menu also shows a list of biographies for the selected topic, including names like Bell, Patrick; Bosch, Carl; Emma Lucy; George Washington; Mary Agnes; Nicolas-Joseph; Alice Catherine; on, Harry George; , Obed; mick, Cyrus Hall; Paul Hermann; , Arthur George; thro; y, Eli. A 'Back to Top' button is visible at the bottom right of the dropdown menu.

Przeglądanie multimediiów : filmy wideo i animacje

The screenshot displays the ACCESS Science website interface. At the top, a navigation menu includes 'Home', 'About', 'Articles', 'Biographies', 'Media' (highlighted with a red box), 'For Faculty', and 'For Admins'. Below the menu is a search bar with the text 'Search AccessScience' and a 'Search' button. A 'Browse Articles' section is also visible. The main content area is titled 'Media' and features a red banner for 'Topic: Astronomy & Space Science'. A 'Videos & Animations' tab is highlighted with a red box. Below this, a 'Select Topic' dropdown menu is open, showing a list of topics including 'Astronomy & Space Science', 'Biology & Biomedicine', 'Botany', 'Chemistry', 'Computing & Information Technology', 'Earth Science', 'Engineering & Materials', and 'Environmental Science'. The dropdown menu is also highlighted with a red box. On the right side, there is a 'my ACCESS Science' logo and a button that says 'Save articles, images, searches and more!'.

Przeglądanie multimedialnych: galerie zdjęć

The screenshot displays the AccessScience website interface. At the top, a navigation menu includes links for Home, About, Articles, Biographies, Media (highlighted with a red box), For Faculty, and For Admins. Below the navigation is a search bar with the placeholder text "I'm looking for..." and a "Search" button with a red arrow. To the right of the search bar is a "Browse Articles" section with a "Select Topic" dropdown menu. The main content area features a blue header with the text "Image Galleries" and a breadcrumb trail "AccessScience > Media > Image Gallery". Below this, there are two tabs: "Videos & Animations" and "Image Galleries" (highlighted with a red box). The main content area is titled "A Collection of Topics That Might Interest You" and displays three image thumbnails with captions and right-pointing arrows:

- The 1903 Wright Flyer and Beyond**: A black and white photograph of the Wright Flyer aircraft on a runway.
- Cellular Mitosis**: A colorful fluorescence micrograph showing a cell in the process of mitosis.
- Developing the Flyer**: A black and white photograph of a model of the Wright Flyer on a runway.

Curriculum Maps – Programy nauczania

Curriculum Maps – zebrany i uszeregowany tematycznie materiał szkoleniowy (gotowe programy nauczania)

Przeglądanie bazy w/g gotowych materiałów dydaktycznych - programy nauczania do użycia w prowadzeniu wykładów / kursów

The screenshot shows the ACCESS Science website interface. At the top, there is a navigation menu with items: Home, Articles, Briefings, Biographies, Media, Projects, For Faculty, and For Admins. The 'For Faculty' item is highlighted with a red box and a red arrow. Below the navigation is a search bar with the text 'I'm looking for...' and a 'Search' button. To the right of the search bar is a 'Browse Articles...' dropdown menu set to 'By Topic'. The main content area is titled 'For Faculty' and contains a paragraph of introductory text. Below this text is a 'Jump to:' section with a list of links: 'Curriculum Maps', 'Next Generation Science Standards', 'AccessScience Search Widget', and 'Answers to "Test Your Understanding" Questions'. The 'Curriculum Maps' link is highlighted with a red box and a red arrow. On the right side of the page, there is a 'my ACCESS Science' sidebar with a user profile for 'Krzysztof Rudzinski' and information about saved items and searches.

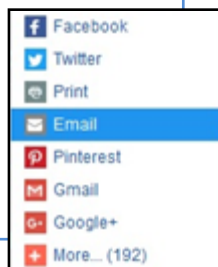
Właściwości konta użytkownika:

konto użytkownika w Access Science umożliwia:
przechowywanie

- wyników wyszukiwania
- zaznaczeń - cytatów
- zaznaczonych artykułów

Możliwość współdzielenia z innymi użytkownikami zaznaczonych-zapisanych materiałów poprzez

- email
- media społecznościowe



The screenshot shows the user interface for a MyAccessScience account. The user is identified as Krzysztof Rudzinski, associated with McGraw-Hill Education. The interface is divided into three main sections: Saved items, Saved searches, and My Account. The Saved searches section is active, displaying a list of saved items. The first item is an article titled "Laser marking" with a checkbox and a menu of actions: CITE, EMAIL, and DELETE. A red box highlights this menu, and a red arrow points to it. The second item is an image titled "Components of the galvanometric marking head" with a checkbox and a menu of actions: CITE, DOWNLOAD, EMAIL, and DELETE. The third item is a biography for Susan Trumbore, with a checkbox and a menu of actions: CITE, EMAIL, and DELETE. A "FILTER ITEMS" section on the left allows filtering by All (checked), Article, Biography, or Image. At the top of the saved items list, there are options to "Select ALL | NONE" and "Selected: Delete Cite".

Inne dodatkowe funkcjonalności

- zapisywanie artykułów
- zapisywanie cytatów
- wysyłanie artykułów mailem
- drukowanie artykułów
- wysyłanie artykułów mailem
- współdzielenie linku do artykułu

Article

Physics » Fluid mechanics » Aerodynamic force
Engineering & Materials » Aeronautical engineering » Aerodynamic force

Aerodynamic force

Article by:
Anderson, John D., Jr. National Air and Space Museum, Smithsonian Institution, Washington, DC;
Department of Aerospace Engineering, University of Maryland, College Park, Maryland.
Last reviewed: 2014
DOI: <https://doi.org/10.1036/1097-8542.012600>

Content Hide ▲

- Lift and drag definitions
- Separation and stall
- Links to Primary Literature
- Force coefficients
- Drag components
- Additional Readings

The force exerted on a body whenever there is a relative velocity between the body and the air. There are only two basic sources of aerodynamic force: the pressure distribution and the frictional shear stress distribution exerted by the airflow on the body surface. The pressure exerted by the air at a point on the surface acts perpendicular to the surface at that point; and the shear stress, which is due to the frictional action of the air rubbing against the surface, acts tangentially to the surface at that point. The pressure and shear stress act at each point on the body surface, and hence the distribution of pressure and shear stress represent a distributed load over the surface. The net aerodynamic force on the body is due to the net imbalance between these distributed loads as they are summed (integrated) over the entire surface. See also: **Boundary-layer flow; Wind stress**

my ACCESS Science
Save articles and searches. Get new content alerts.

[My Account](#) [Sign Out](#)

Krzysztof Rudzinski
McGraw-Hill Education (Organization)

Saved items 3
Saved searches 0

Related Articles

- Airplane wing design** The design of the airplane wing is fundamental to...
- Computational fluid dynamics of aircraft** In the past three decades, there has been...
- Vortex dynamics in supersonic mixing flows** The effectiveness of supersonic combustion is...
- Fuel efficiency and laminar flow control** The International Air

Rozbudowane i szczegółowe statystyki wykorzystania platformy przez użytkowników dostępne poprzez portal SAMS Sigma

Statystyki:

- ilości wyszukiwania
- wejść
- zapisanych danych

This screenshot shows the 'Reports for Camford University' page. The left sidebar has a red box around the 'Reports' menu item. The main content area is titled 'COUNTER 4 reports' and includes a description: 'Using this page, you may download COUNTER 4 reports from publishers that are configured in SAMS Sigma.' Below this is a 'COUNTER 4 report type*' dropdown menu with a red box around it, showing options: 'Book Report 1', 'Book Report 2', 'Book Report 3', 'Database Report 1', and 'Journal Report 1'. A 'Download report' button is at the bottom.

This screenshot shows the 'Dashboard for Camford University'. The top navigation bar includes 'SAMS Sigma', 'Hello, individual full administering', 'Camford University', and 'Log out'. A search bar is present. A red arrow points to a green notification bar that says 'You are now administering Camford University'. The left sidebar has a red box around the 'Reports' menu item. The main dashboard area features several tiles: 'Organization profile', 'Licenses', 'Agreements', and 'Vouchers'. A red box highlights the 'Reports' tile at the bottom, which contains a bar chart icon.



URZĄDZENIA MOBILNE



ANDROID

- LAPTOPY
- SMARTFONY
- TABLETY



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