

Limit Less

How to report on physics and physicists in an accurate and accessible way

iop.org/MediaGuide



IOP Institute of Physics

Introduction

At the Institute of Physics, we recognise the positive power and influence of the ideas and opinions expressed by journalists, like you, through various media. You can have life changing impacts on those reading, watching or listening.

However, negative images can also easily become embedded in the minds of those trusting their favoured media outlets, potentially reinforcing stereotypes and perpetuating untrue representations of certain groups of people.

Young people, their families and communities, look towards the media as a source of authority on many subjects and are influenced by what they see and hear. Images and messaging around physics and physicists that promote stereotypes can have a negative impact on engagement in the subject by young people.

The results of a survey commissioned by the Institute of Physics revealed that one in four parents couldn't remember seeing someone who was described as a physicist in the media in the last six months. Of those parents that did see a physicist, less than half saw someone that themselves or their child could relate to.

We all realise that the work of scientists, including physicists, is crucial for a prosperous, sustainable and healthy society, and we know that to meet the challenges of tomorrow we need to engage far more young people in these subjects today. That will mean ensuring that nobody is put off engaging with physics as a subject at school, college and beyond.

You can support young people and their influencers by whenever possible showing that these subjects are not the preserve of an elite and stereotyped few but are home to a diverse range of people and can also offer a vast range of opportunities to those currently in school.

We hope that this guide helps you to achieve this, whether you are a seasoned science journalist or a general reporter covering the beat for the first time.

Rachel Youngman,
Deputy Chief Executive of the Institute of Physics and Executive Lead for the Limit Less campaign

About Limit Less

Limit Less is the campaign to support young people to change the world and fulfil their potential by doing physics.

The Institute of Physics (IOP) wants to encourage young people from all parts of society, from all groups and backgrounds, especially those who are currently underrepresented in physics, to see that physics could be for them.

This is why we launched the Limit Less campaign. We aim to support young people to change the world – their world – and fulfil their potential by doing physics. We want to increase the number of young people from underrepresented groups in our society who do physics from age 16. To do this the Limit Less campaign is influencing the influencers of young people.

One of these influencers is the media.

'I can think of a few instances where girls, who had clearly done their research, pointed out that physics has a reputation for male chauvinism and felt they would have much broader opportunities with a maths degree. Given the image of physics in the media, and in history, it is not an easy perception to counter.'
– Male Teacher

The Limit Less **#BinTheBoffin** mini-campaign seeks to influence the media by challenging the use of the word 'boffin' in the UK tabloid media to help combat the unhelpful, stereotypical depiction of physics and physicists in the media.

'I never saw anyone like myself speaking about physics on the news.' – Female Physicist

Our research shows that 15% of 11–17 year olds would be put off pursuing a subject further if they were to be called a boffin because of their interest in it. Changing the way that physics and physicists are represented in the media will help to enable these young people and those who influence them to feel that physics is for them.

'I grew up in a deprived area in an industrial town in the north of England... My wish to continue my education and study physics in the sixth form provoked disapproval and accusations of "getting above yourself". The prevalent attitude to physicists was negative, based on preconceptions from fictional stereotypes of eccentric "boffins" whose work was unrelated to the everyday world.' – IOP member

For more information about Limit Less, visit iop.org/LimitLess

For more information about Bin the Boffin, visit iop.org/BinTheBoffin

Overview

In describing today's physicists, and encouraging tomorrow's, it is important to recognise that negative stereotypes in the media can discourage and deter young people from studying physics and contribute to the lack of diversity in the physics community. As a journalist, you can play a big part in changing this.

Here are some simple points to bear in mind when covering or reporting on physics. These may already be familiar to you, but are worth repeating, and can be used to affirm the cornerstones of your coverage. Other points which may be less familiar may be used to help you craft a more inclusive and accurate portrayal of physics and physicists in your reporting.

Use the checklist and toolkit to help you practically implement these points and be a part of the cause to empower more young people to change the world with physics.

1. Show that physics is for everyone

The physics community is made up of all sorts of people and is open to everyone, irrespective of gender, ethnicity, sexuality, disability or social background. By reporting on the diversity of

physicists and their achievements, your journalism can counter the damaging stereotypes that young people and their families are exposed to about who can be a physicist and will encourage the next generation of young people to do physics.

2. Show that physics is not the domain of the lone genius

The 'lone genius' myth remains a pervasive belief about physics, and this stereotype deters many from pursuing the subject. In fact, physics is highly collaborative and physicists are constantly working with each other, and people from other disciplines, to develop their ideas. Words like nerd, geek or boffin reinforce this harmful image and should be avoided.

3. Show that physics requires, and provides, a multitude of skills

Physics isn't just maths. Physicists also have experimental and technical skills and, increasingly, knowledge of computing, communications, management and leadership – skills that are valued by a wide range of employers.

4. Show that physics is accessible to all

Physics can be a challenging and demanding subject, but what individuals find difficult is highly subjective and depends on many factors, many of which are external influences. By avoiding jargon and highlighting the many practical applications and global solutions that physics provides, your reporting can help counter the misconceptions that physics is hard and not relevant to society.

5. Show the variety of physicists in a variety of settings in imagery

Physicists come in all shapes and sizes, genders, ethnicities, sexualities, abilities and ages. Using a variety of images of physicists will illustrate that a career in physics can be achieved and enjoyed by everyone, no matter who they are or their background.

Physicists also work in a wide variety of professions within science, technology, business and education, in many different environments such as factories, hospitals, laboratories, offices, and on ships and aeroplanes as well as on mountain tops, in forests and caves. Reflecting this in imagery

can show the diverse range of employment opportunities that physics offers.

Check out the Limit Less Careers Resource for more information: iop.org/sites/default/files/2022-02/IOP-Limit-Less-careers-booklet-UK-Ireland.pdf

Toolkit

Quotes

Finding diverse sources for science stories – The Open Notebook (US-based but relevant to UK) – theopennotebook.com/finding-diverse-sources-for-science-stories/

Contact the Science Media Centre – sciencemediacentre.org/working-with-us-for-journalists/

Here are a couple of groups currently promoting and elevating diverse voices in physics

- The Blakett Lab Family (theblakettlabfamily.com/)
 - Lightyear Foundation (lightyearfoundation.org/)
 - Neurodivergent in STEM (neurodivergentinstem.com/)
 - LGBTQ+ STEM (lgbtstem.wordpress.com/)
 - Black Women in Science Network (bwisnetwork.co.uk/)
 - Pride in STEM (prideinstem.org/)
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Inclusive language

Words to use and avoid when writing about disability – Cabinet Office – gov.uk/government/publications/inclusive-communication/inclusive-language-words-to-use-and-avoid-when-writing-about-disability

Inclusive language dictionary – Self-Defined – selfdefined.app/

Diversity Style Guides for Journalists – The Open Notebook (US-based but relevant to UK) – theopennotebook.com/diversity-style-guides-for-journalists/

Physics Explanations

A media guide for physics – Wired – wired.com/2013/10/a-media-guide-for-physics/

Carl Zimmer’s guide to science writing – irregardless.ly/style_guides/13?name=popular&collection_id=13

Newsletters

Science writing news roundup – sciencewriting.substack.com/

Finkbeiner Test

Journalist Christie Aschwanden developed the Finkbeiner test to challenge gender bias in media. To pass the test, your description must not mention:

- That she is a woman
- Her husband’s job
- Her childcare arrangements
- How she nurtures her underlings
- How she was taken aback by the competitiveness in her field
- How she is a role model for other women
- How she is the “first woman to…”

This kind of writing can reinforce difference, highlighting successful members of marginalised groups as exceptions to the status quo.

Communicating Uncertainty

How to communicate scientific uncertainty (Uses case study of COVID-19 but can be generally applied) – Lifeology – app.us.lifeology.io/viewer/lifeology/sciomm/how-to-communicate-scientific-uncertainty

The Institute of Physics (IOP) is the professional body and learned society for physics in the UK and Ireland. It seeks to raise public awareness and understanding of physics, inspire people to develop their knowledge, understanding and enjoyment of physics and support the development of a diverse and inclusive physics community. As a charity, it has a mission to ensure that physics delivers on its exceptional potential to benefit society.

Limit Less is the campaign to encourage and support young people to change the world and fulfil their potential by doing physics. It seeks to challenge the misconceptions and stereotypes about the subject and remove the barriers to young people doing physics beyond the age of 16.

For further advice on the information, please contact **campaigns@iop.org**

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The Institute of Physics is a charity registered in England and Wales (no. 293851) and Scotland (no. SC040092).
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