

# High-level accessibility review – BTAA (IOP Science eBooks - final version)

## Primary Point of Contact

Denis Boudreau  
Principal Web Accessibility Consultant

Deque Systems, Inc.

Web: [www.deque.com](http://www.deque.com)

Email: [denis.boudreau@deque.com](mailto:denis.boudreau@deque.com)

**May 21<sup>st</sup>, 2018**



# High-level accessibility review – IOP Science eBooks

## TABLE OF CONTENTS

High-level accessibility review – IOP Science eBooks .....	2
IOP Science eBooks .....	3
Summary (top 3 problems for IOP Science eBooks) .....	3
Accessibility findings .....	3
Project wide issues.....	3
1. IOP Science eBooks landing page.....	4
1a. IOP Science eBooks landing page, collections .....	5
1b. IOP Science eBooks landing page, series .....	6
2. IOP Science eBooks search results page .....	7
3. IOP Science eBooks book details page.....	8
4. IOP Science eBooks book details page, formats .....	9

## IOP Science eBooks

### Summary (top 3 problems for IOP Science eBooks)

---

This assessment covers the IOP Science eBooks application. Overall, there are very few issues for accessibility unveiled by this assessment, and our audit even found areas where we were pleasantly surprised with very accessible implementations, such as the tabpanels in the book details page. The application still shows some issues for accessibility however. Beyond this general statement, the top 3 issues found in this application were:

1. **Headings not marked up as such** – A lot of the headings in the pages are presented visually as such but lack the expected semantic structure in HTML to convey the same information to screen reader users and users of other types of assistive technologies. This will cause users to miss out on key information and cause them to struggle more than necessary to make sense of the content of each page.
2. **Untagged PDF documents** – PDF documents in the application appear to be untagged, which is a major problem for accessibility, as screen reader users have no way to efficiently navigate through them. This is a serious matter, but also a very complicated one, as remediation of PDF documents means a lot of resources and efforts spent (that may be well beyond the control of the platform).
3. **Inconsistent heading structure** – Most pages rely on a heading structure that skips levels and can cause confusion for users who cannot see the screen. Reviewing the heading structure of the documents to use a more hierarchically sound outline would help with navigation.

### Accessibility findings

---

#### Project wide issues

The issues presented in this section were identified in multiple pages and are recorded here to avoid repetition. These are applicable to each screen. Due to particularities, similar issues are reported on a page per page basis, where applicable.

#### Automated findings using Axe

- **SC 1.3.1** – The page should have at least one landmark role for the main section
- **SC 2.4.4** – IOP Science and IOP Publishing links are lacking discernible text
- **SC 4.1.1** – ID attribute values on objects in the page must be uniquely named.

Issues found through automated testing come from the Axe plugin, an open source accessibility testing tool that is available for Firefox and Chrome. Details here: <https://www.deque.com/products/axe/>.

#### Additional manual findings using NVDA screen reader

- **SC 1.3.1** – The navigation at the bottom of the page should be assigned a navigation landmark
- **SC 2.1.1** – The Close button for the Privacy and Cookies notification is not keyboard accessible.

## 1. IOP Science eBooks landing page

Source: <http://iopscience.iop.org/bookList/10/1>

**Test case:** Test ebook landing page, including menus, sort by and filter by options, book listings/covers, searchbox, etc. Test search (upper right side). Search for “Concise Introduction to Quantum Mechanics” and click on “Search.”

The screenshot shows the IOP Science eBooks landing page. At the top, there is a navigation bar with 'IOPscience' logo, 'Journals', 'Books', 'Publishing Support', and 'dequetest'. A search bar is located on the right with the text 'Search IOPscience content' and a 'Search' button. Below the navigation bar, the page title is 'Browse books'. There are filters for 'Sort by: Latest, Oldest, A-Z title' and 'Filter by: All collections, All years, Go'. The main content area displays a grid of book listings. Each listing includes a book cover, title, authors, publication date, and links for 'PDF book', 'ePub book', and 'Kindle book'. A '+ View description' link is also present for each book. On the right side, there is a 'BOOKS LINKS' sidebar with links for 'Browse books', '+ Collections', '+ Series', 'Author Resources', 'Librarian Resources', 'Webinars', 'Pricing and Ordering', and 'About IOP eBooks'. At the bottom right, there are two award logos: 'ALPSP SILVER' (ALPSP Awards for Innovation in Publishing 2014) and 'INTERNATIONAL EXCELLENCE AWARDS 2015' (Nominated in).

### Automated findings using Axe

- **SC 1.1.1** – Book covers for each publication must have alt attributes assigned to them
- **SC 1.3.1** – Heading levels on the page should only increase by increments of one
- **SC 1.3.1** – Form elements in the page must have labels assigned to them
- **SC 2.4.4** – Links on book covers through the list are lacking discernible text.

### Additional manual findings using NVDA screen reader

- **SC 1.3.1** – Page has a confusing heading structure that skips hierarchical levels
- **SC 1.3.1** – Publication titles are presented as headings but are not marked up as such
- **SC 1.3.1** – “Book Links” heading is made to look like a heading but is not marked up as such
- **SC 1.3.1** – The pagination link grouping at the bottom should be assigned a navigation landmark
- **SC 2.4.4** – PDF Book, ePUB Book, and Kindle Book links are not meaningful even within context
- **SC 2.4.4** – “View description” link for each publication is not meaningful even within context
- **SC 4.1.2** – Form label associations are invalidated by CSS rules set to “display: none”
- **SC 4.1.2** – Book cover thumbnail links are announced to screen readers as their file name.

## 1a. IOP Science eBooks landing page, collections

Source: <http://iopscience.iop.org/bookListInfo/iop-expanding-physics#collections>

Test case: From initial interface, which lands on Browse books page, test switching between the different browse options on the right-hand side (+Collections, +Series), and features on each option for accessibility.

**IOP Expanding Physics** IOP Expanding Physics publishes high-quality texts from leading voices across the research landscape on key areas in physics and related subject areas.

**Recently published** All books in collection

**Entrepreneurship for Creative Scientists**  
Author: Dawood Parker, Surya Raghu and Richard Brooks  
Published May 2018  
+ View description

**Introduction to Pharmaceutical Biotechnology, Volume 1: Basic techniques and concepts**  
Author: Saurabh Bhatia and Divakar Goli  
Published May 2018  
+ View description

**Entropy Beyond the Second Law: Thermodynamics and statistical mechanics for...**

**Forthcoming**

**Bias in Science and Communication: A field guide**  
Author: Matthew Welsh  
Expected publication: May 2018

**Cover to Follow**

**Separation of Variables and Superintegrability: The symmetry of solvable systems**  
Author: Ernest G Kalnins, Jonathan M Kress and Willard Miller Jr  
Expected publication: May 2018

**Cover to Follow**

**BOOKS LINKS**  
Browse books  
Collections  
IOP Expanding Physics  
IOP Concise Physics  
AAS-IOP Astronomy  
Physics World Discovery  
Series  
Author Resources  
Librarian Resources  
Webinars  
Pricing and Ordering  
About IOP eBooks

Sponsored by PUBLISHING TECHNOLOGY  
**ALPSP SILVER**  
ALPSP Awards for Innovation in Publishing 2014

### Automated findings using Axe

- **SC 1.3.1** – Heading levels on the page should only increase by increments of one
- **SC 2.4.4** – Links on book covers through the list are lacking discernible text.

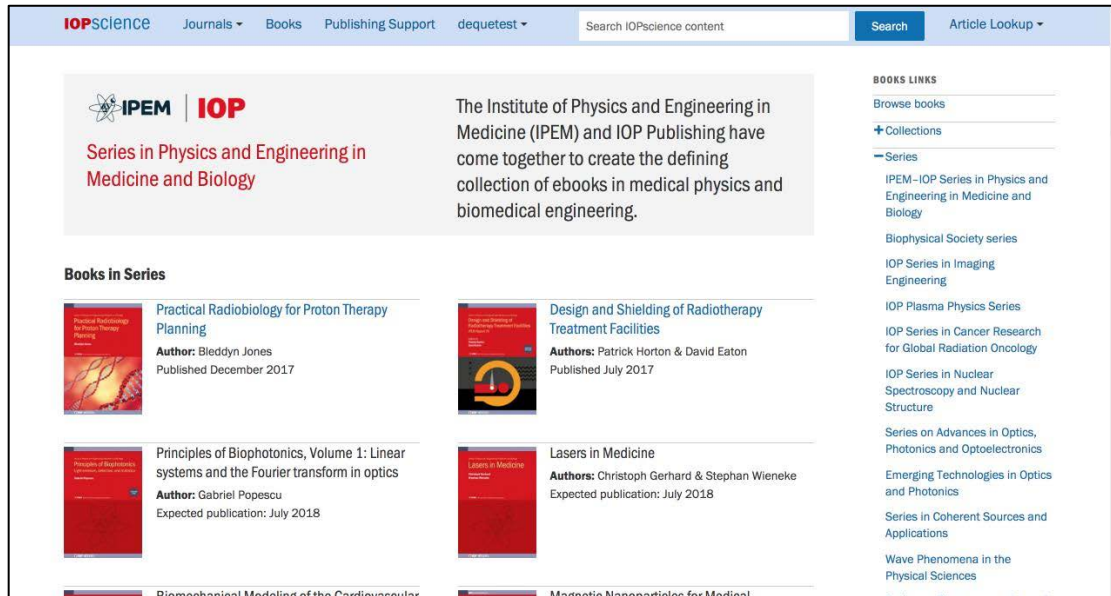
### Additional manual findings using NVDA screen reader

- **SC 1.3.1** – Page has a confusing heading structure that skips hierarchical levels
- **SC 1.3.1** – “All Books in Collection” is marked up as a heading while it does not fill that purpose
- **SC 1.3.1** – Publication titles are made to look like headings but are not marked up as such
- **SC 1.3.1** – “Book Links” heading is made to look like a heading but is not marked up as such
- **SC 1.3.1** – Forthcoming book titles are made to look like a heading but is not marked up as such
- **SC 1.3.1** – Contacts names are made to look like headings but aren’t marked up as such
- **SC 2.4.4** – Links on book covers are not meaningful as the images lack alt text.

## 1b. IOP Science eBooks landing page, series

Source: <http://iopscience.iop.org/bookListInfo/physics-engineering-medicine-biology-series#series>

Test case: From initial interface, which lands on Browse books page, test switching between the different browse options on the right-hand side (+Collections, +Series), and features on each option for accessibility.



### Automated findings using Axe

- SC 1.1.1 – Book covers for each publication must have alt attributes assigned to them
- SC 1.3.1 – Heading levels on the page should only increase by increments of one.

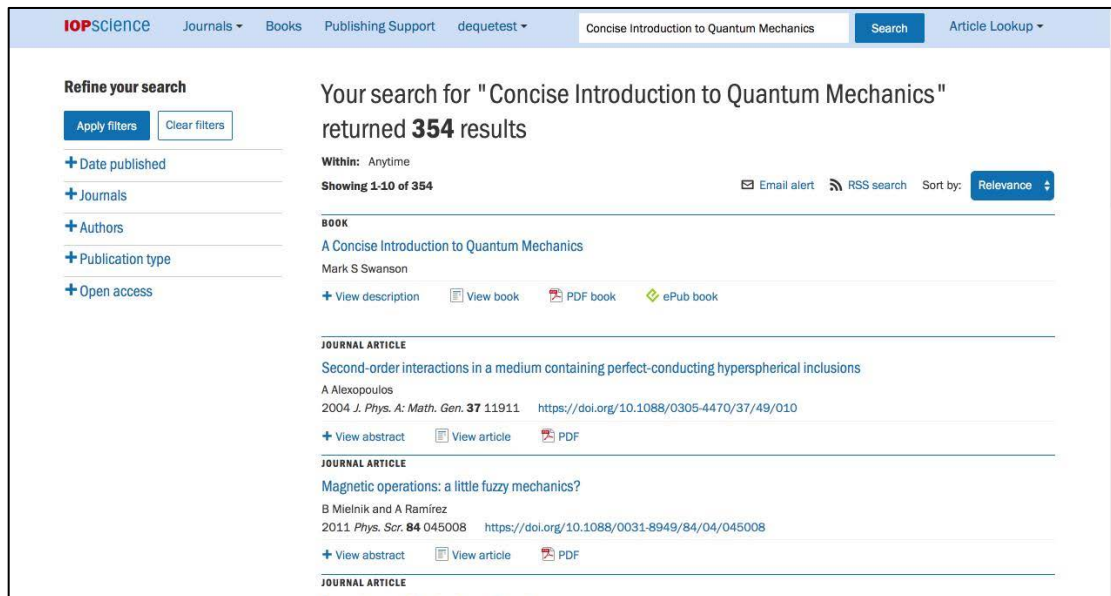
### Additional manual findings using NVDA screen reader

- SC 1.3.1 – Page has a confusing heading structure that skips hierarchical levels
- SC 1.3.1 – Publication titles are made to look like headings but are not marked up as such
- SC 1.3.1 – Board members names are made to look like headings but aren't marked up as such
- SC 1.3.1 – "Book Links" heading is made to look like a heading but is not marked up as such
- SC 1.3.3 – The currently selected series is only identified as such visually through color.

## 2. IOP Science eBooks search results page

Source: <http://iopscience.iop.org/nsearch?terms=Concise+Introduction+to+Quantum+Mechanics>

Test case: Test results page, including: sort by dropdowns (option menu on right side, above result list), filter by Publication Type (left navigation), view description, and View Book.



### Automated findings using Axe

- **SC 1.3.1** – Checkbox inputs with the same name attribute value must be part of a group
- **SC 1.3.1** – Dropdown control for views per page must have a label assigned to it
- **SC 1.3.1** – Radio inputs with the same name attribute value must be part of a group
- **SC 1.4.3** – Separator element before “Open Access” must have sufficient color contrast.

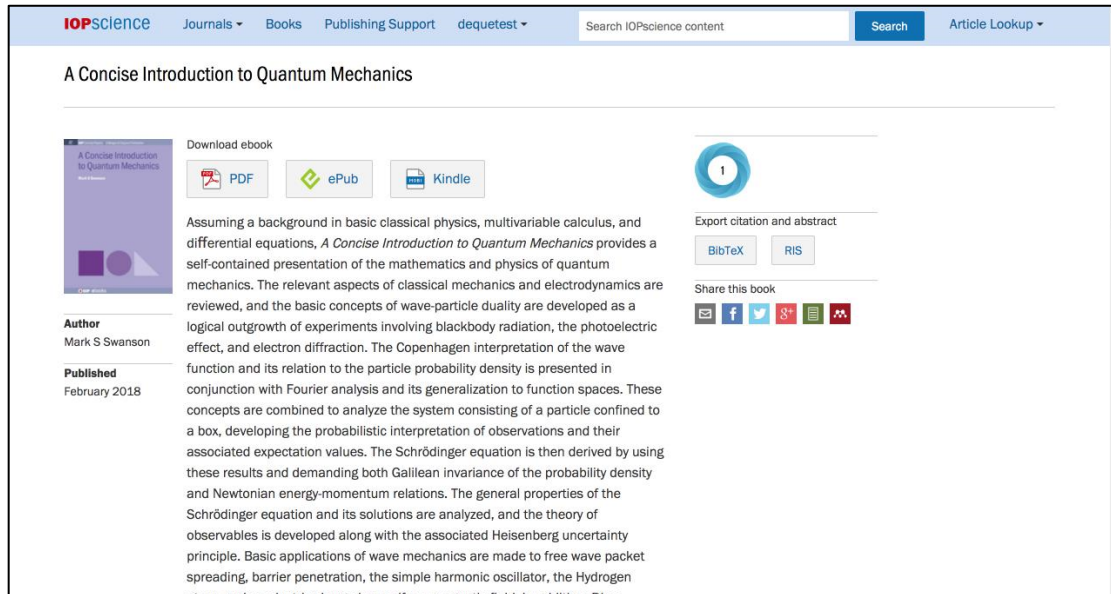
### Additional manual findings using NVDA screen reader

- **SC 1.3.1** – Page has a confusing heading structure that skips hierarchical levels
- **SC 1.3.1** – Publication titles are made to look like headings but are not marked up as such
- **SC 1.3.2** – The hotjar widget is displayed early on, but is located at the bottom of the DOM
- **SC 2.1.1** – Radio buttons in the hotjar widget are not reachable by keyboard alone
- **SC 2.1.1** – The button to dismiss or expand the hotjar widget is not keyboard accessible
- **SC 2.4.2** – The current page title is neither meaningful or descriptive of the content of this page
- **SC 2.4.4** – “View description” and “View abstract” links are not meaningful even within context
- **SC 2.4.4** – View book, PDF Book, ePUB Book and PDF links aren’t meaningful even within context
- **SC 4.1.2** – The state of the radio buttons in hotjar widget is not conveyed to screen readers
- **SC 4.1.2** – Page dropdown label associations is invalidated by CSS rules set to “display: none”
- **SC 4.1.2** – The button to dismiss or expand the hotjar widget is not conveyed to screen readers.

### 3. IOP Science eBooks book details page

Source: <http://iopscience.iop.org/book/978-1-6817-4716-3>

**Test case:** Go to the Book by clicking on the title – is book landing page accessible. Test Table of Contents Chapter browse (at bottom of book's landing page). Switch tab to Author. Test Share this book feature (right side of book landing page). Share book via email.



#### Automated findings using Axe

- **SC 1.1.1** – Book cover image must have alt attributes assigned to it.

#### Additional manual findings using NVDA screen reader

- **SC 1.3.1** – Elements in the page are made to look like headings but are not marked up as such
- **SC 1.3.1** – Links under “Share this book” should be structured using list markup (UL/LI)
- **SC 1.3.1** – Chapter titles in tabpanel are made to look like headings but aren’t marked up as such
- **SC 1.3.1** – Headings in About book and Author tabpanels aren’t marked up as headings
- **SC 2.4.4** – PDF, ePUB, Kindle, BibTex and RIS links are not meaningful even within context
- **SC 2.4.4** – Chapter links in tabpanel (PDF Chapter, etc.) are not meaningful even within context
- **SC 4.1.2** – “Share” links can’t be triggered using only the keyboard with screen reader turned on.

#### Note

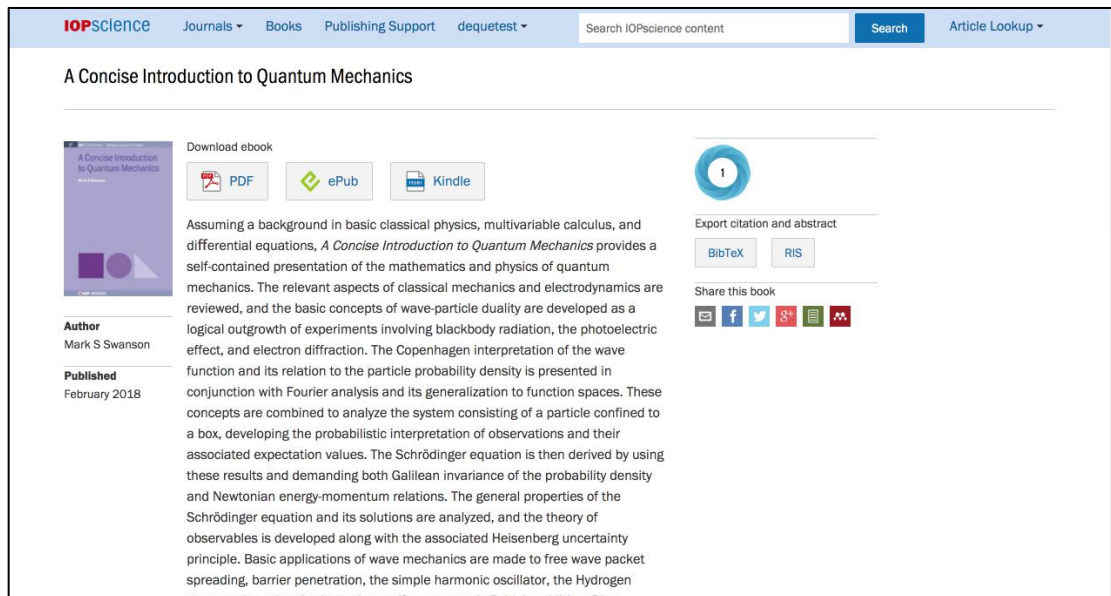
We stopped our testing before the templates for various social media platforms as these are out of scope for our current engagement and depend entirely on third-party vendors.



#### 4. IOP Science eBooks book details page, formats

Source: <http://iopscience.iop.org/book/978-1-6817-4716-3>

Test case: Test downloading the book, pdf and ePub version. Test full text chapter accessibility in both HTML and PDF.



#### Automated findings using Axe

- **SC 1.1.1** – Book cover image must have alt attributes assigned to it
- **SC 1.3.1** – Heading levels on the page should only increase by increments of one.

#### Additional manual findings using NVDA screen reader

- **SC 1.3.1** – Elements in the page are made to look like headings but are not marked up as such
- **SC 1.3.1** – Links under “Share this book” should be structured using list markup (UL/LI)
- **SC 1.3.1** – Chapter titles in tabpanel are made to look like headings but aren’t marked up as such
- **SC 1.3.1** – Headings in About book and Author tabpanels aren’t marked up as headings
- **SC 2.4.4** – PDF, ePub, Kindle, BibTex and RIS links are not meaningful even within context
- **SC 2.4.4** – Chapter links in tabpanel (PDF Chapter, etc.) are not meaningful even within context
- **SC 4.1.2** – “Share” links can’t be triggered using only the keyboard with screen reader turned on.

#### Specific findings about the PDF download using NVDA screen reader

The PDF shared is an untagged PDF document, with very limited capabilities in terms of accessibility. Some of the issues found in the PDF document include:

- The document is not tagged and contains no tagging structure
- The document does not have any headings to help make sense of the content structure
- No semantics are provided to help screen reader users navigate through the PDF
- Images are not marked up and provided with appropriate alt text
- Mathematical equations are not conveyed in a meaningful way to screen reader users
- Screen readers struggle reading through the content as it currently is presented
- The document shows its filename instead of the document title by default

- The primary language of the document is not identified as being English
- The document is not assigned a meaningful descriptive title
- The document does not offer a list of bookmarks to navigate through the content
- Etc.

**Specific findings about the PDF download using NVDA screen reader**

Quickly testing the ePUB and Kindle versions of the document using an available reader tht has its own share of accessibility problems (IceCream eBook Reader on Windows 10), the documents still show variations of the issues described for the PDF version.