High–level accessibility review – BTAA
(SPIE Digital Library Platform)

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SPIE Digital Library Platform

Summary

Top 3 problems for the SPIE Digital Library Platform

This assessment covers portions of the SPIE Digital Library Platform. The assessment revealed serious problems with screen reader compatibility, resulting in screen reader users missing critical information needed to understand content and operate features.

1. **Color Contrast –** The grey links on grey background consistently fails to deliver sufficient contrast throughout.
2. **Focus Visible –** The application does not consistently visually indicate the in-focus controls, and when it does, the indicator is not always highly visible.
3. **Name, Role, Value –** Several roles and states for important page components and functions are missing or incorrect. Also, custom controls have not been made accessible to users of Assistive Technology.

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 still reported on a page per page basis, where applicable.

Automated findings using Axe

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

1. **SC 3.1.1 A –** There is no page language defined using the lang attribute and valid value.
2. **SC 1.1.1 A** – The 'close' image in the 'Access provided by…' drawer is missing an alt
3. **SC 4.1.2 A** – The search 'Submit' button is missing a name
4. **SC 4.1.2 A** – The header search field is missing a programmatic label.
5. **SC 4.1.2 A** – The linked 'SPIE', 'SPIE Digital Library', 'SPIE Career Center', 'Optics.org', 'SPIE Digital Library' images in the header are missing a link name.
6. **SC 4.1.2 A** – The linked 'Facebook', 'Twitter', 'LinkedIn', 'SPIE' images in the footer are missing a link name.
7. **SC 1.4.3 AA** – Throughout the site, the grey text #6D6E70 against a grey background #E5E6E6 results in a 4.08:1 contrast ratio.

Additional manual findings using NVDA screen reader

1. **SC 1.4.11 AA** – The 'close' image in the 'Access provided by…' drawer is low in contrast.
2. **SC 2.5.3 A** – The Privacy Policy link in the Cookie Notice reads "learn more about cookies"
3. **SC 1.4.11 AA** – Buttons, links and other controls that only use a color change to indicate focus do not have a sufficiently different color change (minimum 3:1 contrast ratio between unfocused and focused states) to indicate focus.
4. **SC 2.4.7 AA** – Several elements in the header, footer and throughout the site do not receive a clearly visible focus indicator.
5. **SC 1.4.5 AA** – The ad content in the header contains an image of text.
6. **SC 1.1.1 A** – The linked image in the ad is missing alternative text.
7. **SC 4.1.2 A** – The 'close' button in the ad area is missing a programmatic name.
8. **SC 4.1.2 A** – The 'Sign in' link is missing an href attribute.

9. **SC 1.4.3 AA** – All dark links are low in contrast when they receive focus. #6D6E70 focus color on #E5E6E7 background results in a 4.1:1 contrast ratio.
10. **SC 2.4.1 A** – The 'back to top' links only move the browser viewport and not the programmatic focus.
11. **SC 2.1.1 A** – It is not possible for a keyboard user to expand the 'Journals' submenu.
12. **SC 4.1.2 A** – The 'Journals' item does not indicate it contains a submenu.
13. **SC 1.3.2 A** – There is hidden content available to screen reader users after the footer content. The content appears to be a duplication of the top level navigation.

1. SPIE Digital Library Landing Page

Source: https://www.spiedigitallibrary.org/?SSO=1

Test case: Initial interface – menus & submenus, search boxes, images, etc.

Automated findings using Axe
1. **SC 4.1.2 A** – The in-page search field is missing a programmatic label.

Additional manual findings using NVDA screen reader
1. **SC 1.1.1 A** – The "Conference Button" image is decorative and should have an empty alt.
2. **SC 4.1.2 A** – The "Advanced Search" link is missing an href attribute.
3. **SC 1.1.1 A** – The linked "SPIE. Optics+ Optoelectronics" image reads "Optical Systems Design"
4. **SC 1.1.1 A** – The linked "We're here to help you with research and publishing during coronavirus. Read our response to COVID-19" image reads "COVID-19 Announcement"
5. **SC 1.1.1 A** – The linked "Progressional English Language Editing Services…" image reads "English Language Editing Services with Editage"
6. **SC 4.1.2 A** – The linked image above 'Featured Presentation' acts as a link but is missing a role.
7. **SC 1.1.1 A** – The decorative Google Translate image is described as "<img alt=''>"

2. SPIE Digital Library Search Results

Source: https://www.spiedigitallibrary.org/search?term=nonlinear+optics

Test case: Search for "nonlinear optics" on initial landing page/interface. Test search result page:
o   "Sort by" options – defaulted to "relevance"
o   "Read Abstract+" option under each result for article abstract/descriptions
o   Save citations to list (select Save to My library button)
o   Test "Refine by" on left (Years: 2016-21, Publication Type: Journal Article)

Automated findings using Axe
1. **SC 4.1.1 A –** The page contains several instances of the ID 'btnSaveTo', 'EbookAccessPopup'
2. **SC 1.1.1 A –** The 'remove filter' "X" icon is missing an empty alt attribute
3. **SC 4.1.2 A –** The in-page search field is missing a programmatic label.
4. **SC 1.3.1 A –** The 'Sort by' and 'Display' select menus are not programmatically associated with their visible label.

Additional manual findings using NVDA screen reader
1. **SC 4.1.2 A –** The 'remove filter' "X" element behaves like a button but is missing an appropriate role and name
2. **SC 2.4.4 A –** The "Read Abstract" and "Download Paper" links are repeated but are missing programmatic context to identify their unique purpose
3. **SC 4.1.2 A –** The search 'Submit' button is missing a name
4. **SC 1.4.5 AA –** The "Open Access" and "Paper" content on each search result is implemented as images of text.
5. **SC 1.1.1 A –** The "Open Access" content on each search result has an empty alt
6. **SC 2.4.6 AA –** The "Save To My Library" buttons are repeated but are missing additional programmatic context to identify their unique purpose
7. **SC 4.1.2 A –** The custom checkboxes are all missing a role, programmatic association with their visible

label and state.

8. **SC 2.1.1 A** – A keyboard user is unable to operate the custom checkboxes
9. **SC 1.3.1 A** – The custom checkboxes are not programmatically associated with their respective group labels.
10. **SC 4.1.3 AA** – 'Loading' status messages are not announced.
11. **SC 4.1.2 A** – The expanded/collapse state of filters that contain such a state is not programmatically defined.
12. **SC 1.3.1 A** – The Year Range input fields are not programmatically associated with their visible label.
13. **SC 4.1.2 A** – The slider widget is missing required ARIA roles and attributes in order to be fully accessible as a slider.

3. SPIE Digital Library Article Landing Page

Source: https://www.spiedigitallibrary.org/journals/advanced-photonics/volume-1/issue-2/024002/Nonlinear-optics-in-all-dielectric-nanoantennas-and-metasurfaces--a/10.1117/1.AP.1.2.024002.full

Test case: Article landing page including tabs for figures/tables, references, etc.
• Test PDF by selecting "download paper".
• Test "Advanced Search" pop-up (top right-hand side). No need to perform actual search.

Automated findings using Axe
1. **SC 4.1.1 A –** The page contains several instances of the ID 'FigureDownload', 'ID0EIPAG', 'closeAlert'
2. **SC 1.1.1 A** – The 'Open Access', 'Get Citation', 'Subscribe to Digital Library' and 'Receive Erratum Email Alert' images are missing an alt attribute

Additional manual findings using NVDA screen reader
1. **SC 2.4.4 A** – There are several "Google Scholar" links that are missing context
2. **SC 4.1.2 A** – The 'Article', 'Figures & Tables', 'References' and 'Cited By' tab widget is missing required roles and attributes to function as a tab widget
3. **SC 4.1.2 A** – The 'Article' menu does not programmatically indicate it contains a submenu
4. **SC 4.1.2 A** – The 'Save to My Library' link is missing an href attribute
5. **SC 4.1.2 A** – The 'Share' and 'Get Citation' functions like a button but is missing the required semantics
6. **SC 2.2.2 A** – The animation that is seen in some advertisements cannot be paused, stopped or hidden by accessible methods.
7. **SC 1.4.1 A** – The doi.org link at the start of the article does not have sufficient contrast or an additional visual identifier between the link text and surrounding text.

NOTE: Insufficient time to test PDF or Advanced Search.