Critical requirements for keeping societies central to scholarly communication

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Conflict of Interest (COI) of the Presenter: No potential COI to disclose.

July 30, 2017

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The challenge

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Scientific communication is intensifying

- Societies need to capture every aspect of scientific communication—not just the publication of a final manuscript
- Societies need to accelerate the use of technology that enables the ways the science community collaborates, communicates, and consumes research
- This vision is fueled by the needs of researchers and practitioners and anticipates the needs of societies

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Atypon's content growth

HOSTING MORE THAN

40%

of the world's English-language scholarly journals.

3.1B
USER SESSIONS

24.1M
ARTICLES

160.7K
E-BOOKS

11.4K
JOURNALS

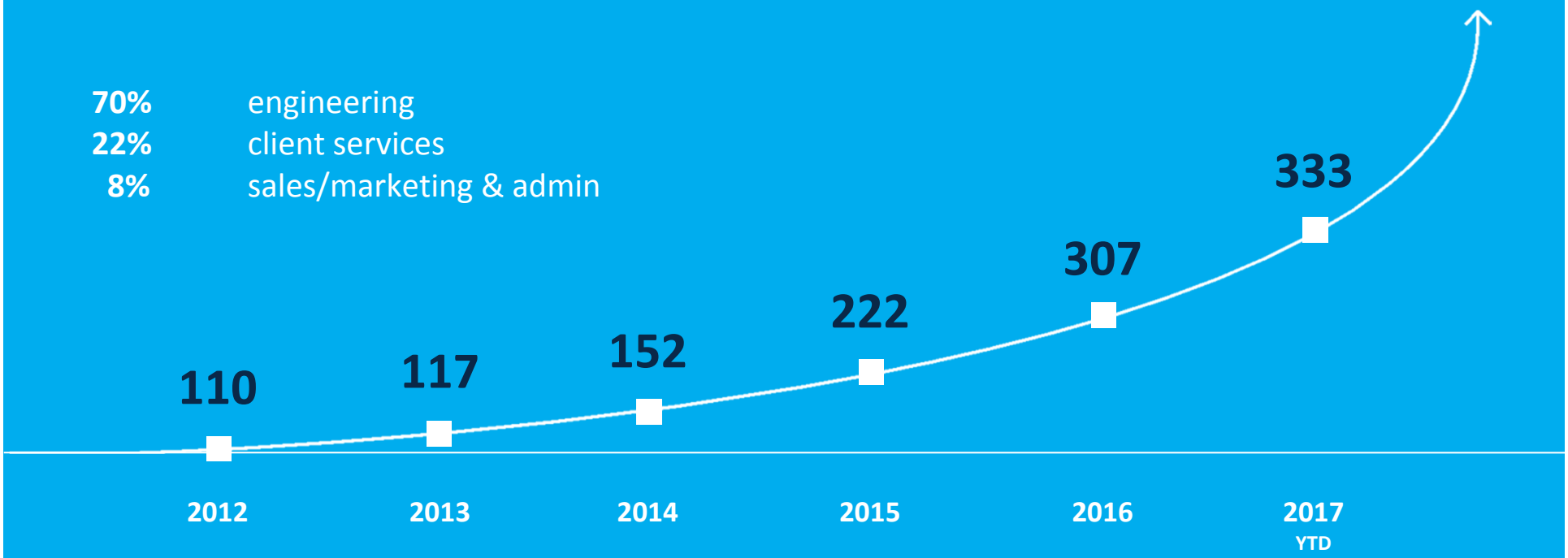
2.4K
SOCIETIES

998
PUBLICATION WEBSITES

More publishers, more journals and more features than any other platform.

Atypon's staff growth

70% engineering
22% client services
8% sales/marketing & admin



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Industry threats are intensifying

"At this time the widest possible distribution of research papers, as well as of other scientific or educational sources, is artificially restricted by copyright laws. Such laws effectively slow down the development of science in human society."

The Solution

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Reassert the value societies bring

- Ensure accuracy and relevance
- Drive readership and engagement
- Convey authority through brand
- Maintain sustainability

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Technology in the service of scientific communication

- Find creative solutions to new pressures and challenges
- “Disrupt the disrupters”: Keep pace and make advances to help societies enter the “information cycle” sooner
- Keep societies ahead of the technology demand curve
- Keep societies relevant and central to the research experience

Technology that keeps authors and readers within a society’s ecosystem.

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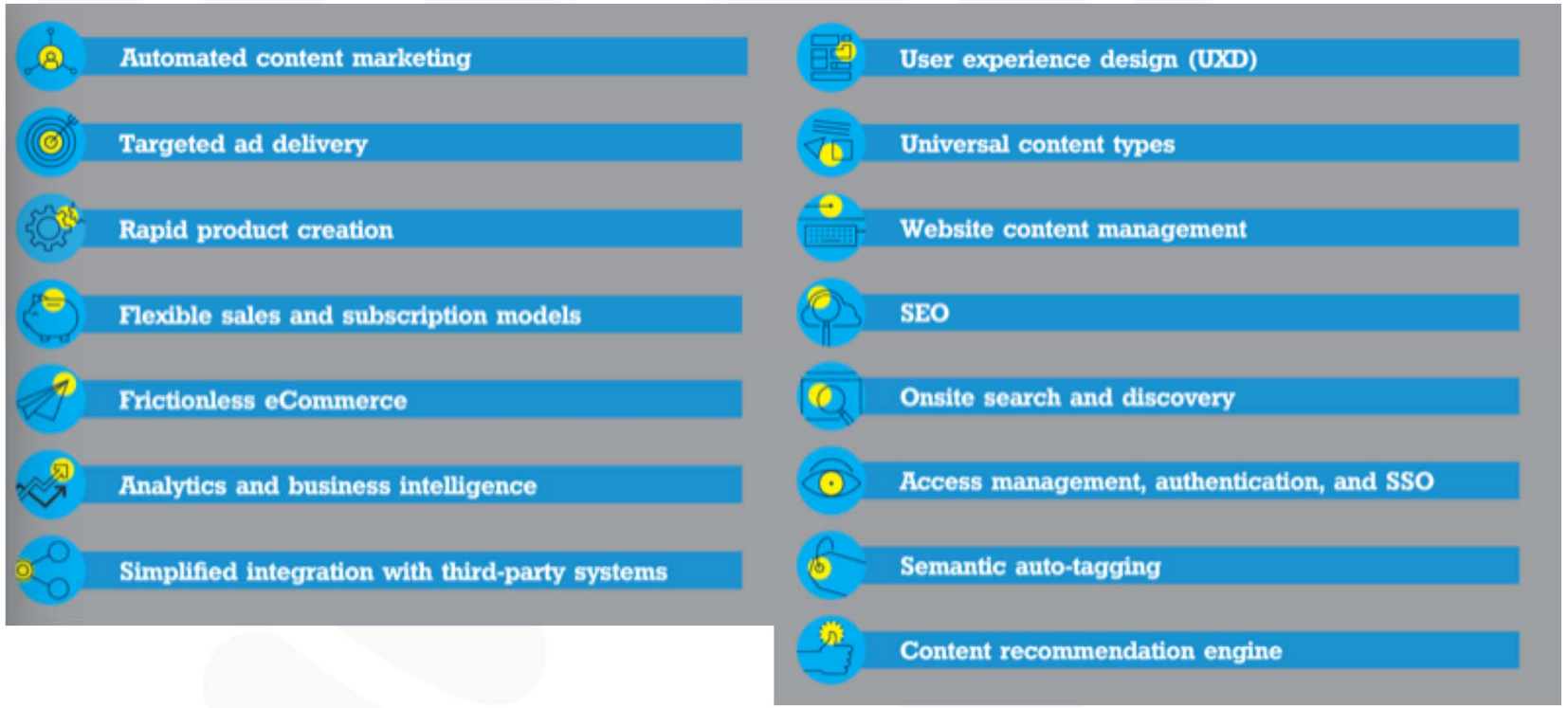
Key technology components for website creation, maintenance, and hosting



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A necessary change in TECHNOLOGY

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The ideal web-first publishing workflow

Bringing together the author, review, *and* publication systems:

- gets scientific discovery into the hands of researchers and practitioners *sooner*
- transforms content transmission from researcher to researcher, practitioner, and student.

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The ideal web-first publishing workflow

- Links web authoring systems with web hosting and provides web editing for authors and extensive annotation systems
- Moves from XML (non-web native) to scholarly HTML and Linked Data
- Speeds review, approval, and publish on preprint services and services before preprint
- Enables continuous, not episodic publishing of smaller content “slices” more often for successively wider audiences
- Transforms the process by publishing both experimental data and visualizations.

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A web-first workflow could be enabled by an AI-based alert filtering system

- Artificial intelligence-based research discovery, organization service, and social interactions
- Surfaces unknown content
- Improves user experience and accelerated discovery
- Provides “Big Data” analytics enhancing discovery across sites

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A necessary change in DESIGN

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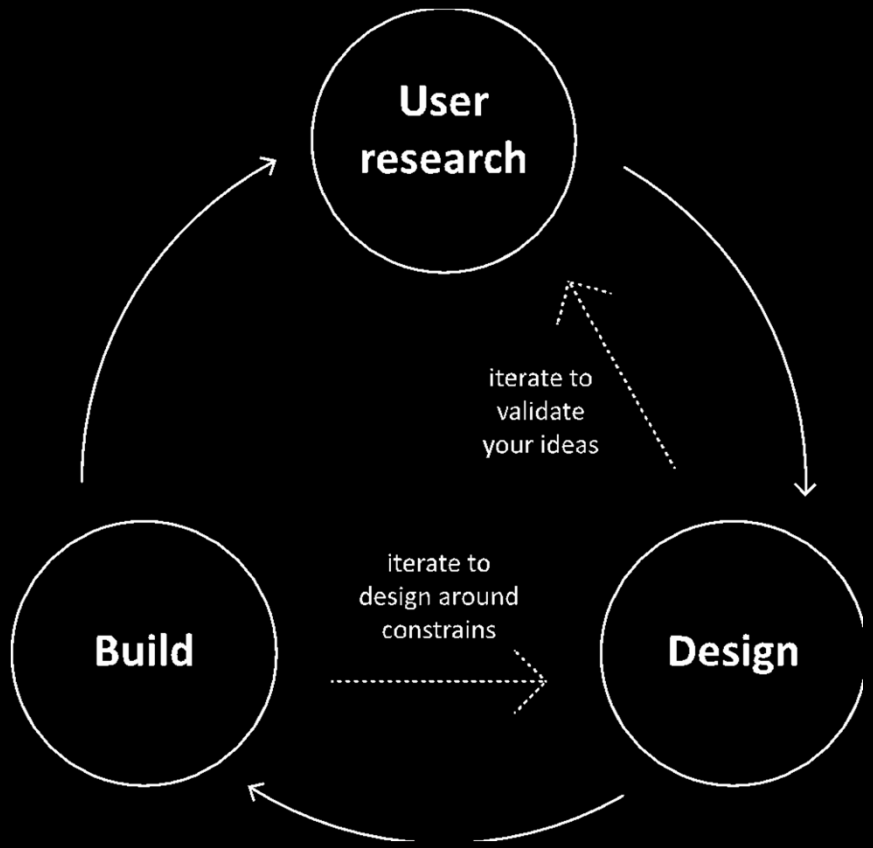
UX Design:

- Engage readers
- Lengthen site visits
- Increase revenues
- Enhance brands



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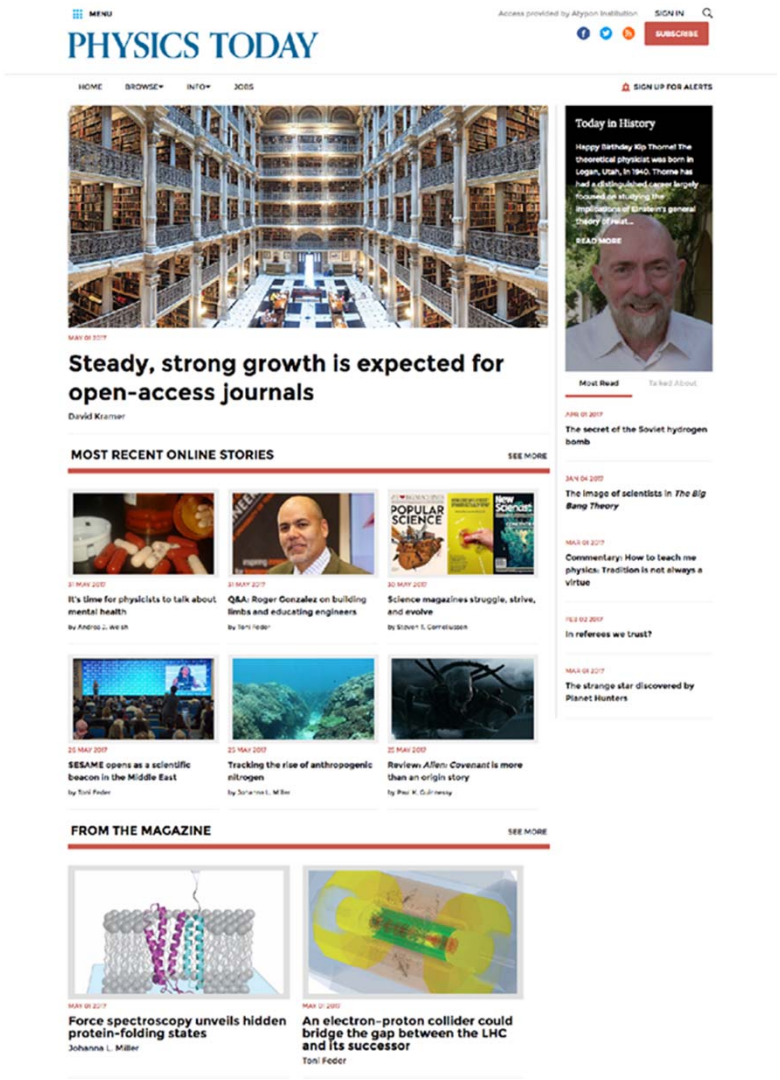

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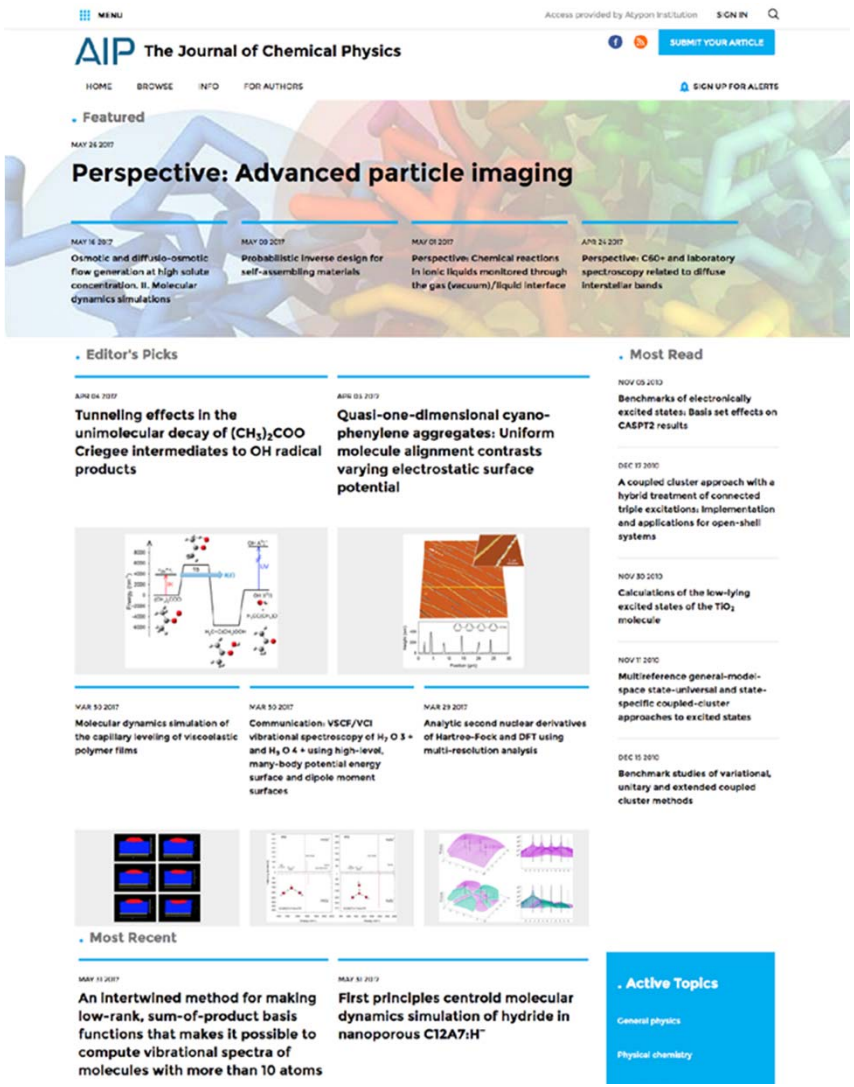

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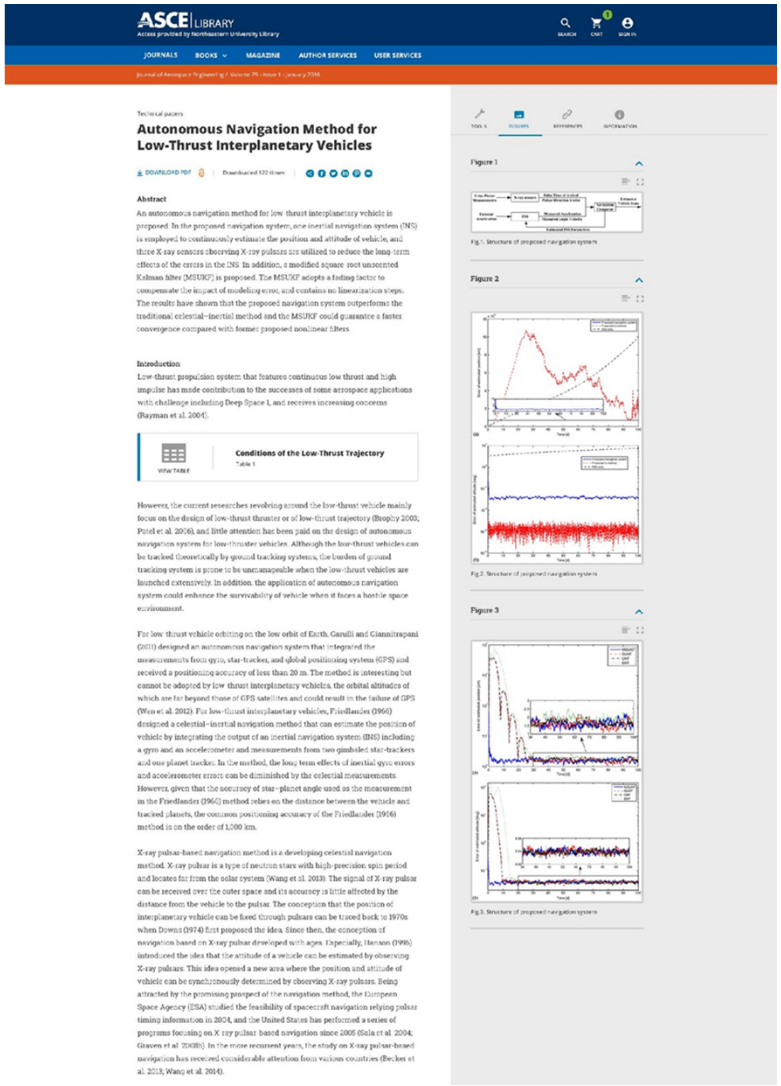
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Autonomous Navigation Method for Low-Thrust Interplanetary Vehicles
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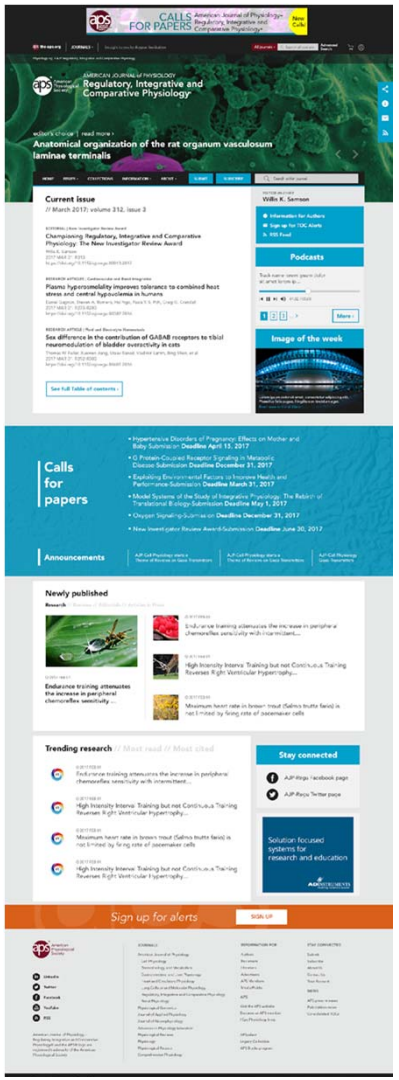
Abstract
An autonomous navigation method for low thrust interplanetary vehicle is proposed. In the proposed navigation system, one inertial navigation system (INS) is employed to continuously estimate the position and attitude of vehicle, and three X-ray sensors observing X-ray pulsars are utilized to reduce the long-term effects of the errors in the INS. In addition, a modified square root unscented Kalman filter (MSUKF) is proposed. The MSUKF adopts a fading factor to compensate the impact of modeling error, and contains no linearization steps. The results have shown that the proposed navigation system outperforms the traditional celestial–inertial method and the MSUKF could guarantee a faster convergence compared with former proposed nonlinear filters.
Introduction
Low-thrust propulsion system that features continuous low thrust and high impulse has made contribution to the successes of some aerospace applications with challenge including Deep Space 1, and receives increasing concerns (Rayman et al. 2004).
VIEW TABLE
Conditions of the Low-Thrust Trajectory
Table 1
However, the current researches revolving around the low-thrust vehicle mainly focus on the design of low-thrust thruster or of low-thrust trajectory (Brophy 2003; Patel et al. 2006), and little attention has been paid on the design of autonomous navigation system for low-thruster vehicles. Although the low-thrust vehicles can be tracked theoretically by ground tracking systems, the burden of ground tracking system is prone to be unmanageable when the low-thrust vehicles are launched extensively. In addition, the application of autonomous navigation system could enhance the survivability of vehicle when it faces a hostile space environment.
For low thrust vehicle orbiting on the low orbit of Earth, Garulli and Giannitrapani (2011) designed an autonomous navigation system that integrated the measurements from gyro, star-trackers, and global positioning system (GPS) and received a positioning accuracy of less than 20 m. The method is interesting but cannot be adopted by low thrust interplanetary vehicles, the orbital altitudes of which are far beyond those of GPS satellites and could result in the failure of GPS (Wen et al. 2012). For low-thrust interplanetary vehicles, Friedlander (1966) designed a celestial–inertial navigation method that can estimate the position of vehicle by integrating the output of an inertial navigation system (INS) including a gyro and an accelerometer and measurements from two gimbaled star-trackers and one planet tracker. In the method, the long term effects of inertial gyro errors and accelerometer errors can be diminished by the celestial measurements. However, given that the accuracy of star–planet angle used as the measurement in the Friedlander (1966) method relies on the distance between the vehicle and tracked planets, the common positioning accuracy of the Friedlander (1966) method is on the order of 1,000 km.
X-ray pulsar-based navigation method is a developing celestial navigation method. X-ray pulsar is a type of neutron stars with high-precision spin period and locates far from the solar system (Wang et al. 2013). The signal of X-ray pulsar can be received over the outer space and its accuracy is little affected by the distance from the vehicle to the pulsar. The conception that the position of interplanetary vehicle can be fixed through pulsars can be traced back to 1970s when Downs (1974) first proposed the idea. Since then, the conception of navigation based on X-ray pulsar developed with ages. Especially, Hanson (1996) introduced the idea that the attitude of a vehicle can be estimated by observing X-ray pulsars. This idea opened a new area where the position and attitude of vehicle can be synchronously determined by observing X-ray pulsars. Being attracted by the promising prospect of the navigation method, the European Space Agency (ESA) studied the feasibility of spacecraft navigation relying pulsar timing information in 2004, and the United States has performed a series of programs focusing on X-ray pulsar based navigation since 2005 (Sala et al. 2004; Graven et al. 2008b). In the more recurrent years, the study on X-ray pulsar-based navigation has received considerable attention from various countries (Becker et al. 2013; Wang et al. 2014).
Figure 1
Fig. 1. Structure of proposed navigation system
Figure 2
Fig. 2. Structure of proposed navigation system
Figure 3
Fig. 3. Structure of proposed navigation system

ASCE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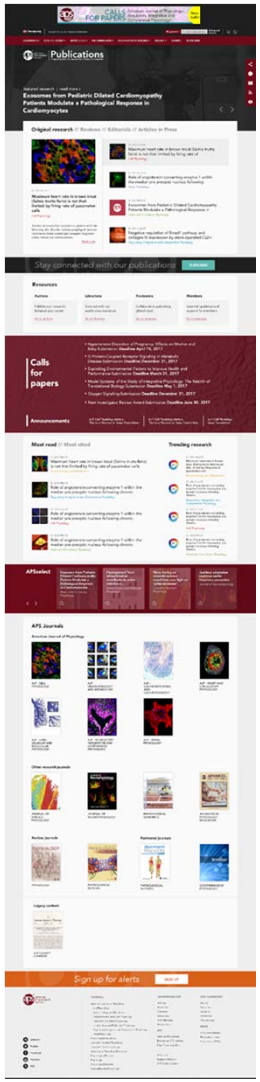
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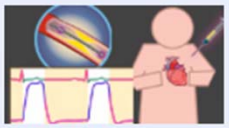

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The iFR-SWEDEHEART and DEFINE-FLAIR Trials

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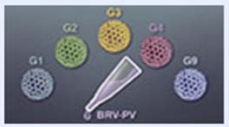

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QUICK TAKE

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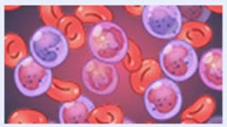

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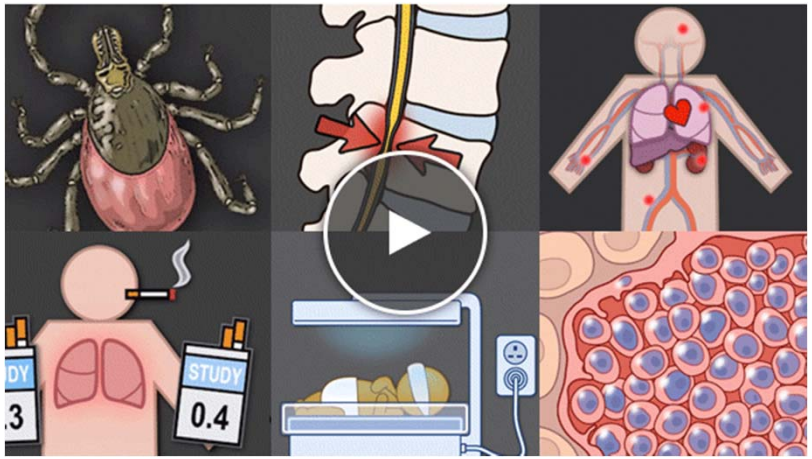
The IRIS Trial



A

A necessary change in MARKETING

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1. **Promotion**
2. Personalization
3. Consumerization
4. Discoverability
5. eCommerce
6. Automation
7. Optimization

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Push marketing

(it's not just for eBay, Facebook, and Amazon)

- Email promotions
- eTOC alerts
- Topic-based alerts

1. Promotion
2. **Personalization**
3. Consumerization
4. Discoverability
5. eCommerce
6. Optimization

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Deliver relevant content, ads, and promotions

Track user identities and site behavior

- User segmentation
- Content bundles and chapterization
- Topic-based navigation

1. Promotion
2. **Personalization**
3. Consumerization
4. Discoverability
5. eCommerce
6. Optimization

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Benefits to publishers

Enhanced relevance of promotions

- Increased uptake and follow-through
- Higher click and conversion rates

Enhanced relevance of content

- Increased engagement and revenue

Enhanced impact

- Submissions, authors, citations

1. Promotion
2. Personalization
3. Consumerization
4. Discoverability
5. eCommerce
6. Optimization

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Readers, not users.
Customers, not institutions.

The need for engagement

- Diminished subscriptions and ad revenue
- Missed opportunities for brand elevation
- Website abandonment

The path to enlightenment

- Modern user interfaces
- Engaging user experiences
- Intuitive navigation
- Device agnosticism (responsive design)

1. Promotion
2. Personalization
3. Consumerization
4. Discoverability
5. eCommerce
6. Optimization

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Readers can't engage with content they don't know exists

- SEO (search engine optimization)
- Semantic tagging
- Cross-selling across content types
- Enhanced on-site search and discovery
  - Topic-based navigation
  - Facets and filters
  - Predictive search
  - Interactive search

Zen and the art of selling content

1. Promotion
2. Personalization
3. Consumerization
4. Discoverability
5. **eCommerce**
6. Optimization

1. Identify what users want
2. Attract them to the site
3. Make the most of their site visit
   (sell and upsell)
4. Make eCommerce journey frictionless and intuitive
5. Entice them to return and buy more

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1. Promotion
2. Personalization
3. Consumerization
4. Discoverability
5. eCommerce
6. **Optimization**

Continuous optimization via real-time analytics

- Marketing offers
- Content recommendations
- Targeted advertising
- Site messaging
- UI/UX
- SEO
- Predictive search
- Sales and subscription models


Website visitors
Consumerized, mobile-friendly UX
Enhanced search & discovery
Website visitor profiling
Personalized content recommendations
Targeted products & offers
Frictionless eCommerce
Paying customers
AUTOMATION
OPTIMIZATION
LiterAtum
COMPREHENSIVE FUNCTIONALITY
FOR CONTENT MARKETING.

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