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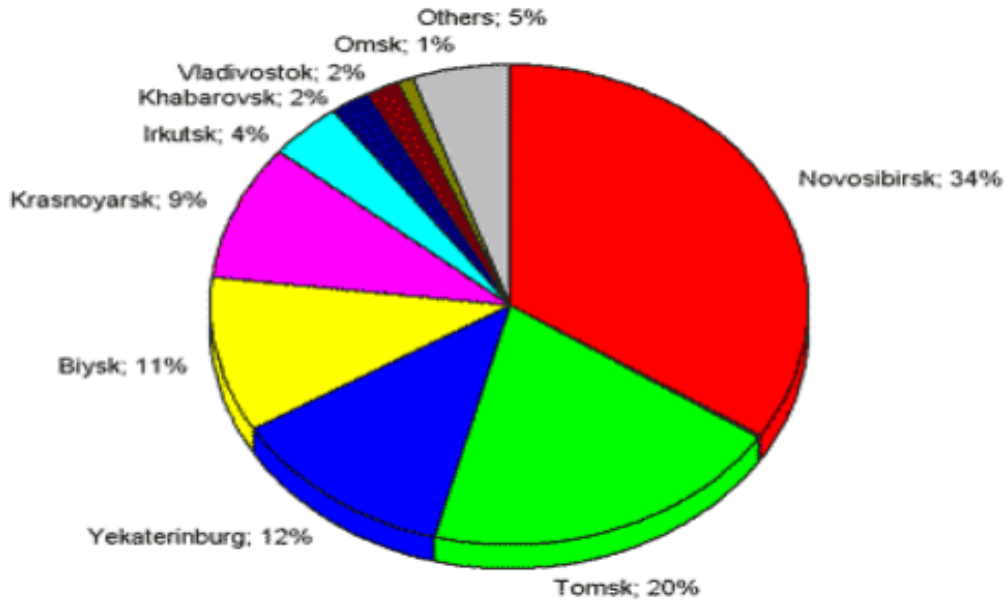
About IEEE Russia Siberia Section

On 13 February 2003 IEEE Russia Siberia Section has been established through the split of the Russia Moscow section. Russia Siberia Section has the strong potential for membership growth through its big cities at Ural (in the order of population decreasing: Yekaterinburg, Chelyabinsk, Tyumen, etc.), Siberia (Novosibirsk, Omsk, Krasnoyarsk, Irkutsk, Barnaul, Novokuznetsk, Kemerovo, Tomsk, Ulan-Ude, Chita, etc.) and the Far-East (Vladivostok, Khabarovsk, etc.) Federal Districts of Russia.



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Here you will find useful information about our activities that we make, as well as some of our history and achieved goals. We are aware of being in a dynamic world, where changes in technology, knowledge and culture are happening at an increasing pace, even more in the Science and Engineering fields. These changes obligate us to a quick and permanent adaptation. In this respect, our Section give to the whole professional community the knowledge and experience that make possible the scientific and technical updating, satisfying the

Tomsk IEEE Chapter & Student Branch of The Institute of Electrical and Electronics Engineers (IEEE)

Tomsk IEEE Student Branch

The Tomsk State University of Control Systems and Radioelectronics IEEE Student Branch was formed in 2000. It is the 3rd IEEE Student Branch in Russia. The branch is active in promoting the IEEE through exciting and informative events ranging from technical seminars to careers events as well as professional conferences. We hope that these events help our members gain valuable knowledge and skills as well as being enjoyable.

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Welcome!

This is the web portal for the Tomsk IEEE Chapter & Student Branch, to communicate with our members and anyone interested in technology and knowledge. The main purpose of the IEEE Tomsk is the dissemination of the theory and practice of all aspects of electrical engineering, electronics, radio, allied branches of engineering or related arts and sciences, as well as the furtherance of the professional development

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- Greater participation in organized events
- Organize more technical and social meetings, on a wide variety of topics
- Increase the number of careers related events

Conferences and Seminar

Sibcon	Sibinfo	Seminar
International Siberian Conference on Control and Communications	Student paper Contest and Conference on the Information Security	Tomsk Seminar "The Intellectual Systems of Modeling, Design and Control"

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Report prepared for:

Institute of Electrical and Electronic Engineers
445 Hoes Lane
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Report prepared by:

1790 Analytics LLC
130 Haddon Avenue
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May 14, 2015

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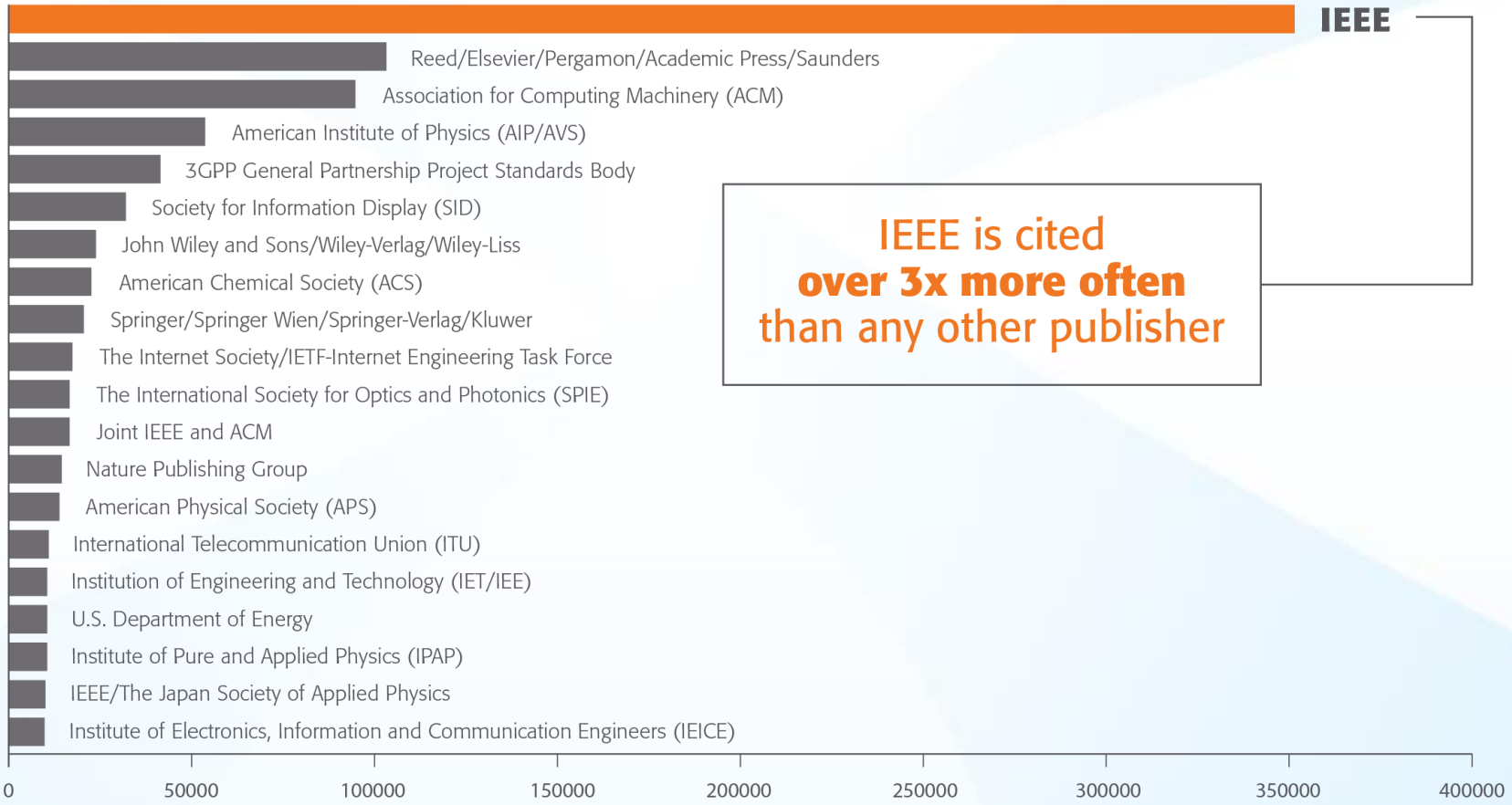

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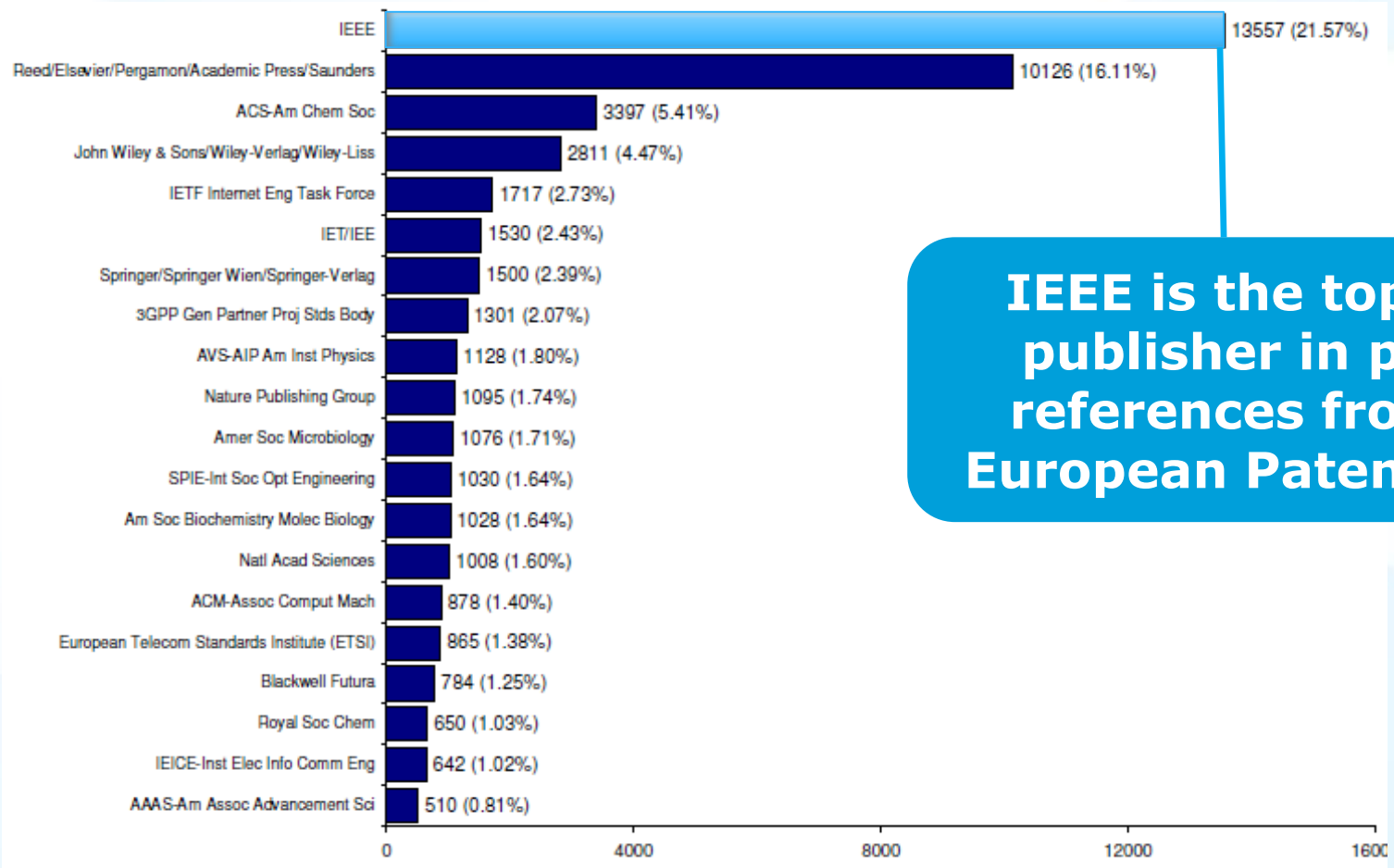

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Robotics	Semiconductors	Smart Grid
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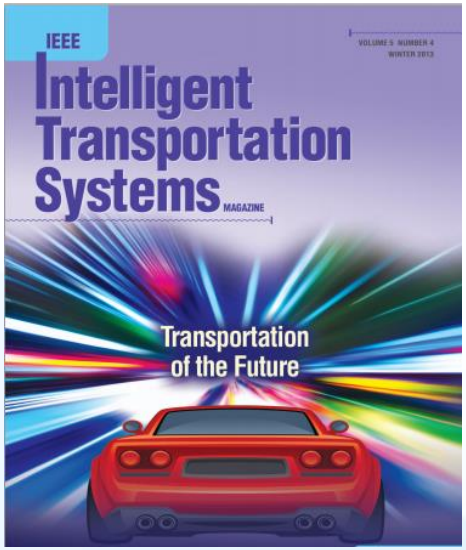

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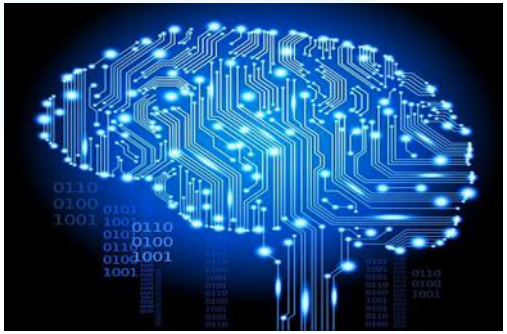

- *IEEE **Communications Standards** Magazine*
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- **Computational Electromagnetics** (ICCEM), 2015 IEEE International Conference on
- **DC Microgrids** (ICDCM), 2015 IEEE First International Conference on
- **Electromagnetic Compatibility and Signal Integrity**, 2015 IEEE Symposium on
- **Identity, Security and Behavior Analysis (ISBA)**, 2015 IEEE International Conference on
- **Industrial Engineering and Operations Management** (IEOM), 2015 International Conference on
- **Microwaves for Intelligent Mobility** (ICMIM), 2015 IEEE MTT-S International Conference on
- **Multimedia Big Data** (BigMM), 2015 IEEE International Conference on
- **Networking Systems and Security** (NSysS), 2015 International Conference on
- **Sampling Theory and Applications** (SampTA), 2015 International Conference on
- **Signal Processing, Informatics, Communication and Energy Systems** (SPICES), 2015 IEEE International Conference on
- **Smart Cities Conference** (ISC2), 2015 IEEE First International

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Examples of New IEEE Conferences in 2014

- **Internet of Things** (WF-IoT), 2014 IEEE World Forum on
- **Humanitarian Technology** Conference, (IHTC), 2014 IEEE Canada International
- **Aerospace Electronics and Remote Sensing Technology** (ICARES), 2014 IEEE International Conference on
- **Antenna Measurements & Applications** (CAMA), 2014 IEEE Conference on
- **Consumer Electronics**, Taiwan (ICCE-TW), 2014 IEEE International Conference on
- **Energy Conversion** (CENCON), 2014 IEEE Conference on
- **Ethics in Science**, Technology and Engineering, 2014 IEEE International Symposium on
- **Transportation Electrification** Asia-Pacific (ITEC Asia-Pacific), 2014 IEEE Conference and Expo
- **Intelligent Energy** and Power Systems (IEPS), 2014 IEEE International Conference on
- **Quantum Optics Workshop** (QOW), 2014
- **Sensor Systems for a Changing Ocean** (SSCO), 2014 IEEE
- **Wireless and Mobile**, 2014 IEEE Asia Pacific Conference on
- **Industrial Engineering and Information Technology** (IEIT), 2014 International Conference on
- **Guidance, Navigation and Control Conference** (CGNCC), 2014 IEEE Chinese

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- 2016 IEEE Intl Conf on Electron Devices and Solid-State Circuits - **Apr 15th**
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- 2016 IEEE Global Humanitarian Technology Conference - **Apr 18th**
- 2016 IEEE Compound Semiconductor IC Symp - **Apr 22nd**
- 2016 Lester Eastman Conference - **May 1st**
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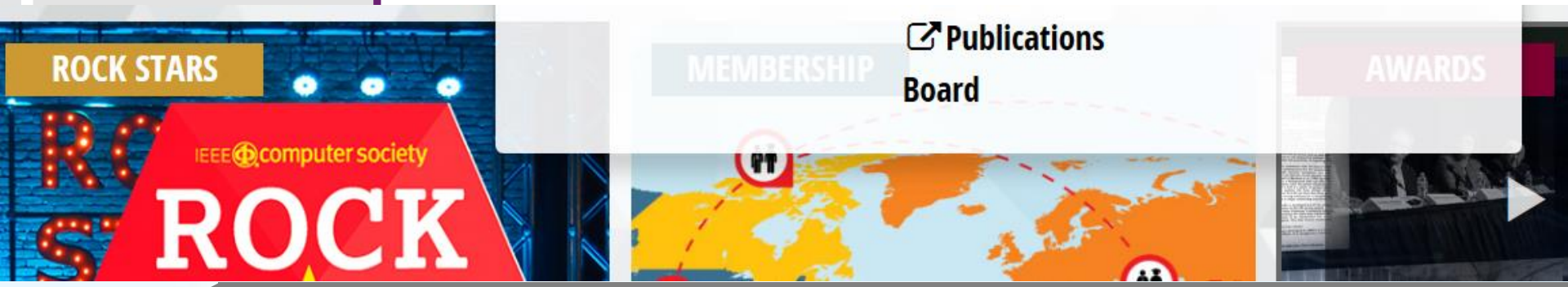

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2.718	0.04492	1.538
Impact Factor	Eigenfactor	Article Influence Score

Aims & Scope

The theory, design and application of Control Systems. It shall encompass components, and the integration of these components, as are necessary for the construction of such systems. The word `systems' as used herein shall be interpreted to include physical, biological, organizational and other entities and combinations thereof, which can be represented through a mathematical symbolism. The Field of Interest: shall include scientific, technical, industrial or other activities that contribute to this field,or utilize the techniques or products of this field, subject, as the art develops, to additions, subtractions, or other modifications directed or approved by the IEEE Technical Activities Board.

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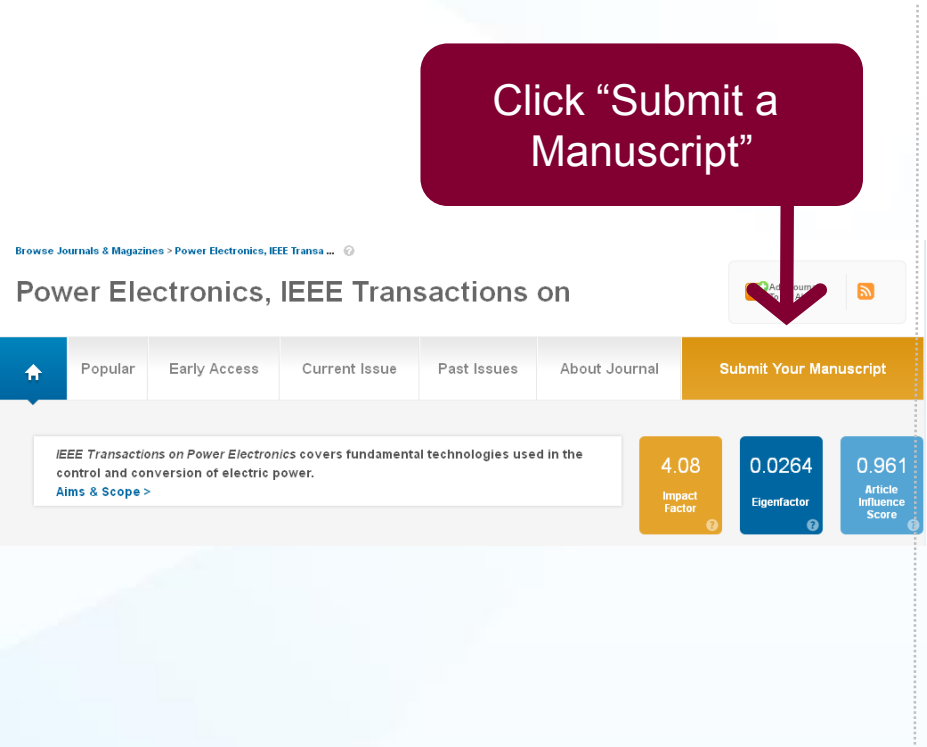

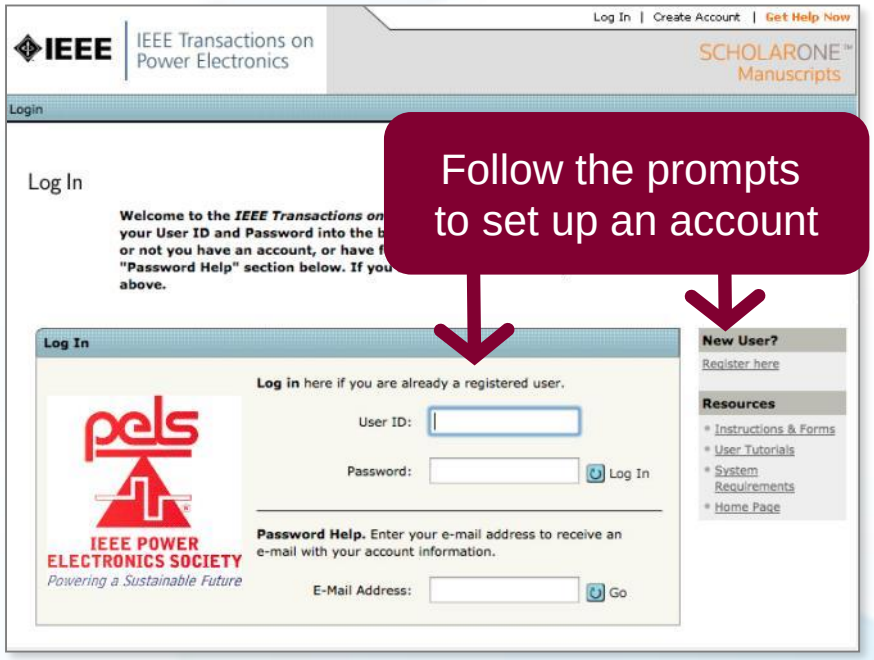

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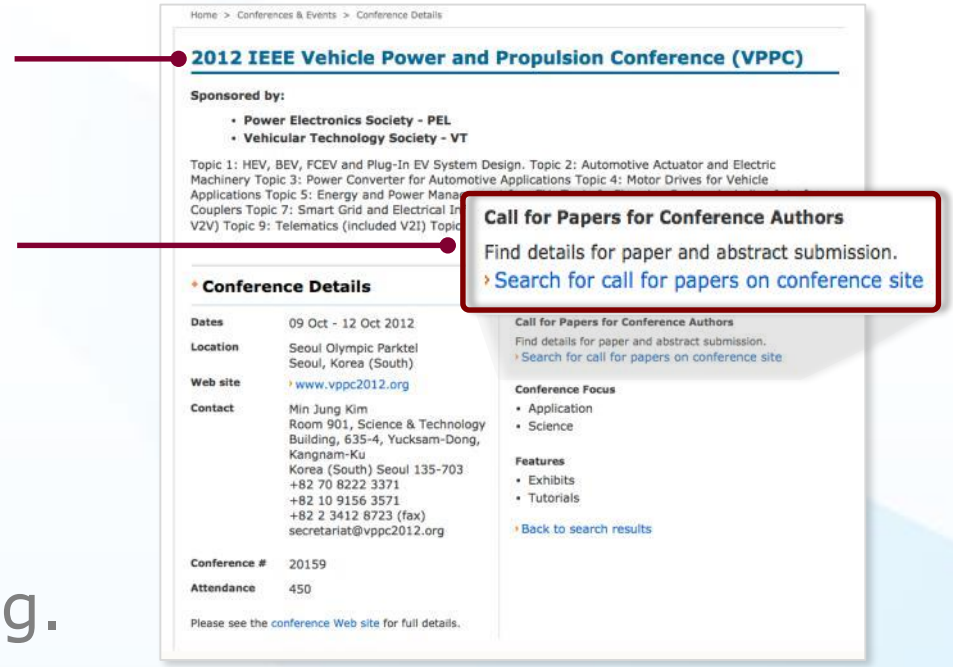

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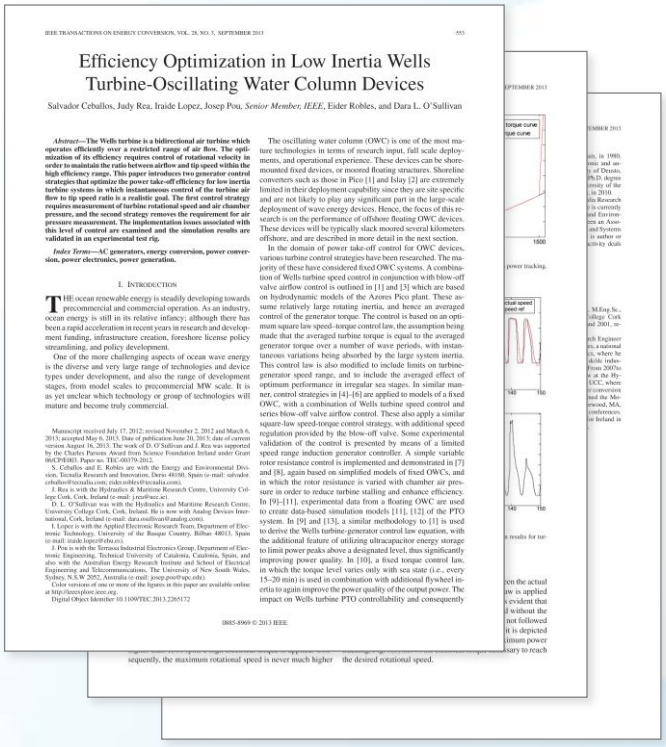
Structure

Paper Structure

Elements of a manuscript

- Title
- Abstract
- Keywords
- Introduction
- Methodology
- Results/Discussions/Findings
- Conclusion
- References



IEEE TRANSACTIONS ON ENERGY CONVERSION, VOL. 28, NO. 3, SEPTEMBER 2013

Efficiency Optimization in Low Inertia Wells Turbine-Oscillating Water Column Devices

Salvador Ceballos, Judy Rea, Iraide Lopez, Josep Pou, *Senior Member, IEEE*, Eider Robles, and Dara L. O'Sullivan

Abstract—**The Wells turbine is a bidirectional air turbine which operates efficiently over a restricted range of air flow. The optimization of its efficiency requires control of rotational velocity in order to maintain the ratio between airflow and tip-speed within the high efficiency range. This paper introduces two generator control strategies that optimize the power take-off efficiency for low inertia turbine systems in which instantaneous control of the turbine air flow to tip speed ratio is a realistic goal. The first control strategy requires measurement of turbine rotational speed and air chamber pressure, and the second strategy removes the requirement for air pressure measurement. The implementation issues associated with this level of control are examined and the simulation results are validated in an experimental test rig.**

Index Terms—**AC generators, energy conversion, power conversion, power electronics, power generation.**

I. Introduction

THE ocean renewable energy is steadily developing towards precommercial and commercial operation. As an industry, ocean energy is still in its relative infancy; although there has been a rapid acceleration in recent years in research and development funding, infrastructure creation, foreshore license policy streamlining, and policy development.

One of the more challenging aspects of ocean wave energy is the diverse and very large range of technologies and device types under development, and also the range of development stages, from model scales to precommercial MW scale. It is as yet unclear which technology or group of technologies will mature and become truly commercial.

The oscillating water column (OWC) is one of the most mature technologies in terms of research input, full scale deployments, and operational experience. These devices can be shore-mounted fixed devices, or moored floating structures. Shoreline converters such as those in Pico [1] and Islay [2] are extremely limited in their deployment capability since they are site specific and are not likely to play any significant part in the large-scale deployment of wave energy devices. Hence, the focus of this research is on the performance of offshore floating OWC devices. These devices will be typically slack moored several kilometers offshore, and are described in more detail in the next section.

In the domain of power take-off control for OWC devices, various turbine control strategies have been researched. The majority of these have considered fixed OWC systems. A combination of Wells-turbine speed control in conjunction with blow-off valve airflow control is outlined in [1] and [3] which are based on hydrodynamic models of the Azores Pico plant. These assume relatively large rotating inertia, and hence an averaged control of the generator torque. The control is based on an optimum square law speed–torque control law, the assumption being made that the averaged turbine torque is equal to the averaged generator torque over a number of wave periods, with instantaneous variations being absorbed by the large system inertia. This control law is also modified to include limits on turbine-generator speed range, and to include the averaged effect of optimum performance in irregular sea stages. In similar manner, control strategies in [4]–[6] are applied to models of a fixed OWC, with a combination of Wells turbine speed control and series blow-off valve airflow control. These also apply a similar square-law speed-torque control strategy, with additional speed regulation provided by the blow-off valve. Some experimental validation of the control is presented by means of a limited speed range induction generator controller. A simple variable rotor resistance control is implemented and demonstrated in [7] and [8], again based on simplified models of fixed OWCs, and in which the rotor resistance is varied with chamber air pressure in order to reduce turbine stalling and enhance efficiency. In [9]–[11], experimental data from a floating OWC are used to create data-based simulation models [11], [12] of the PTO system. In [9] and [13], a similar methodology to [1] is used to derive the Wells turbine–generator control law equation, with the additional feature of utilizing ultracapacitor energy storage to limit power peaks above a designated level, thus significantly improving power quality. In [10], a fixed torque control law, in which the torque level varies only with sea state (i.e., every 15–20 min) is used in combination with additional flywheel inertia to again improve the power quality of the output power. The impact on Wells turbine PTO controllability and consequently

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sequently, the maximum rotational speed is never much higher than the desired rotational speed.

Paper Structure

Title

An effective title should…

- Answer the reader's question: *"Is this article relevant to me?"*
- Grab the reader's attention
- Describe the content of a paper using the fewest possible words
  - Is crisp, concise
  - Uses keywords
  - Avoids jargon

Paper Structure

Good vs. Bad Title

A Human Expert-based Approach to Electrical Peak Demand Management

vs

A better approach of managing environmental and energy sustainability via a study of different methods of electric load forecasting

Paper Structure

Good vs. Better Title

An Investigation into the Effects of Residential Air-Conditioning Maintenance in Reducing the Demand for Electrical Energy

vs

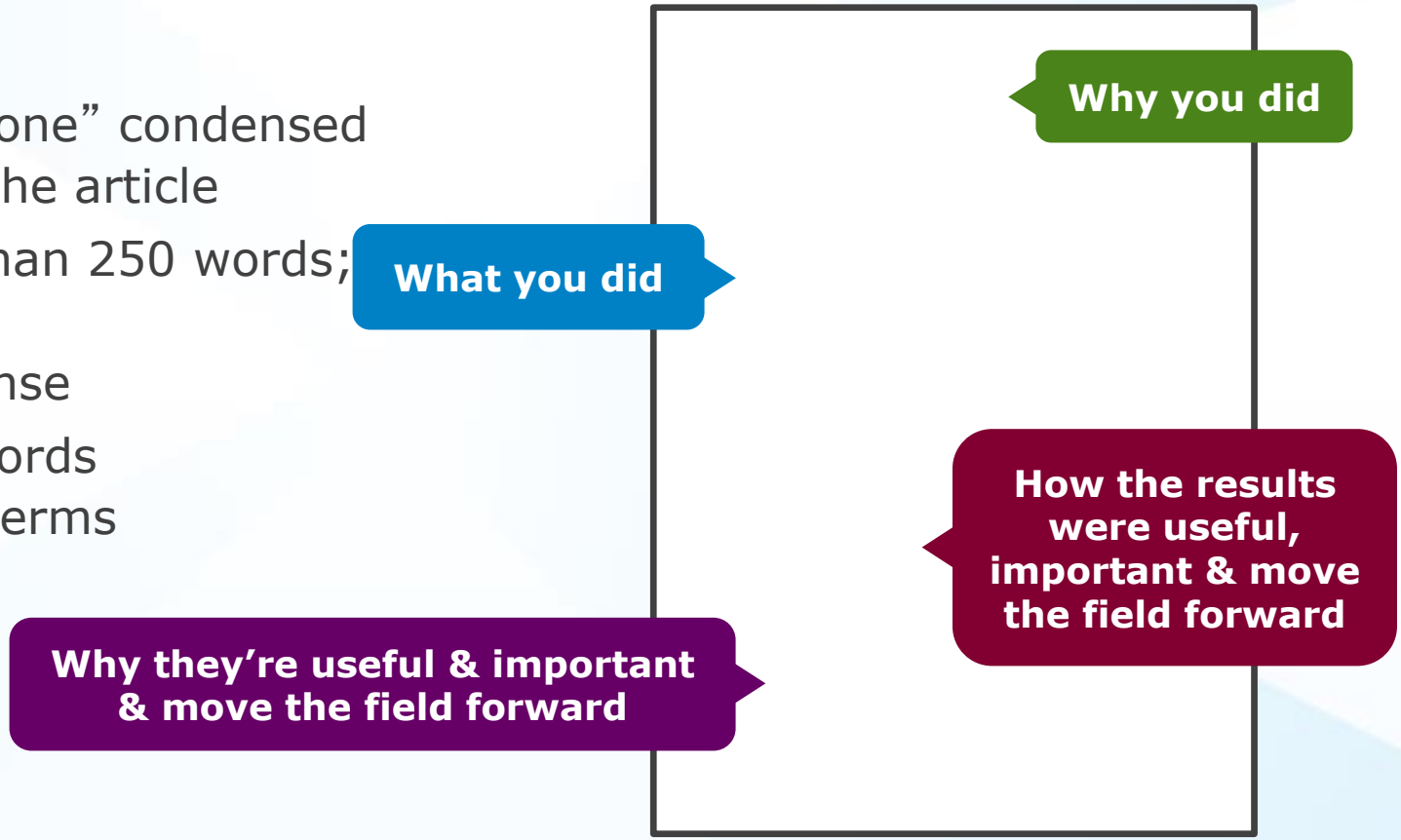
"Role of Air-Conditioning Maintenance on Electric Power Demand"

Paper Structure

Abstract

A “stand alone” condensed version of the article

- No more than 250 words; written in the past tense
- Uses keywords and index terms



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Abstract:#

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The abstract must be a **concise yet comprehensive reflection of what is in your article**. In particular, the abstract must be as follows.

1) Self-contained, without abbreviations, footnotes, or references; it should be a **microcosm of the full article**

2) Between **150-250 words**. Be sure that you adhere to these limits; otherwise, you will need to edit your abstract accordingly.

3) Written as **one paragraph**, and should **not contain** displayed **mathematical equations or tabular material**.

4) Should include **three or four different keywords or phrases**, as this will help readers to find it. It is important to avoid over-repetition of such phrases as this can result in a page being rejected by search engines.

5) Ensure that your abstract **reads well and is grammatically correct**.

Paper Structure

Good vs. Bad Abstract

The objective of this paper was to propose a human expert-based approach to electrical peak demand management. The proposed approach helped to allocate demand curtailments (MW) among distribution substations (DS) or feeders in an electric utility service area based on requirements of the central load dispatch center. Demand curtailment allocation was quantified taking into account demand response (DR) potential and load curtailment priority of each DS, which can be determined using DS loading level, capacity of each DS, customer types (residential/commercial) and load categories (deployable, interruptible or critical). Analytic Hierarchy Process (AHP) was used to model a complex decision-making process according to both expert inputs and objective parameters. Simulation case studies were conducted to demonstrate how the proposed approach can be implemented to perform DR using real-world data from an electric utility. Simulation results demonstrated that the proposed approach is capable of achieving realistic demand curtailment allocations among different DSs to meet the peak load reduction requirements at the utility level.

Vs

This paper presents and assesses a framework for an engineering capstone design program. **We explain** how student preparation, project selection, and instructor mentorship are the three key elements that must be addressed before the capstone experience is ready for the students. **Next, we describe** a way to administer and execute the capstone design experience including design workshops and lead engineers. **We describe the importance** in assessing the capstone design experience and report recent assessment results of our framework. **We comment** specifically on what students thought were the most important aspects of their experience in engineering capstone design and provide quantitative insight into what parts of the framework are most important.

First person, present tense
No actual results, only describes the organization of the paper

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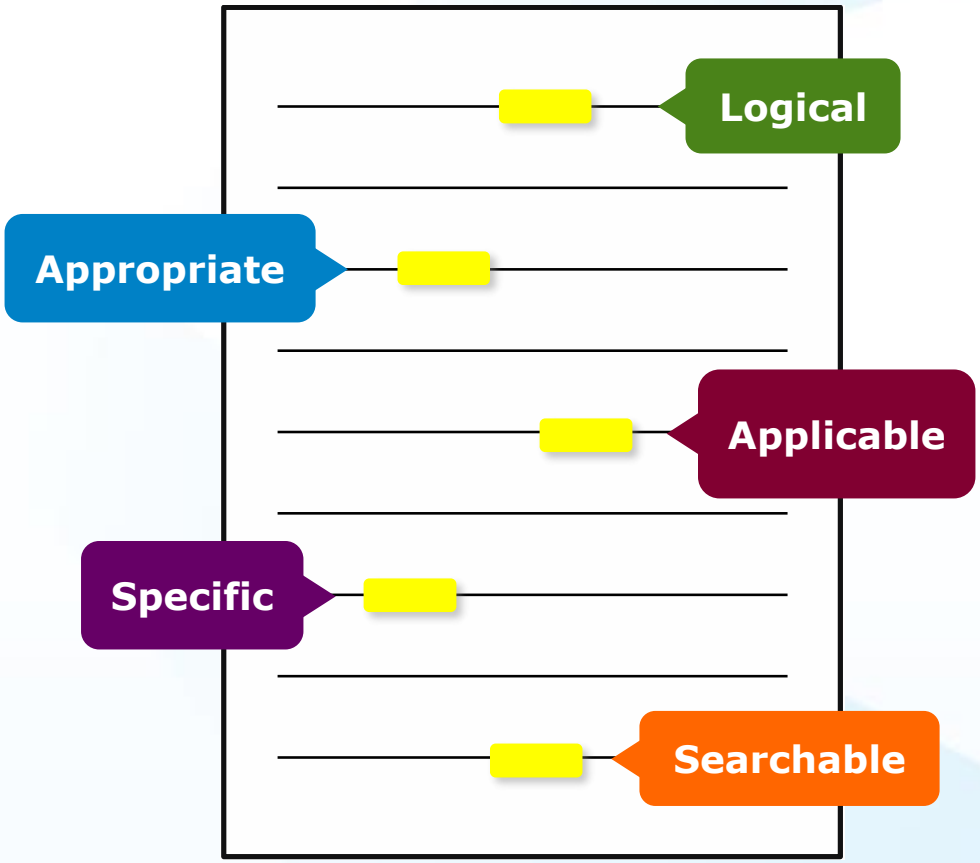
Paper Structure

Keywords

Use in the Title and Abstract for enhanced Search Engine Optimization



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IEEE Keywords

Bit rate, Decoding, Encoding, Parallel processing, Video coding

Authors Keywords

High Efficiency Video Coding (HEVC), parallel programming, video coding

INSPEC: Controlled Indexing

parallel processing, video coding

INSPEC: Non-Controlled Indexing

12-core system, H.264-advanced video coding, HEVC parallelization approaches, OWF, WPP, frequency 3.33 GHz, high efficiency video coding, overlapped wavefront, parallel efficiency, parallel friendliness, parallel scalability, parallelization proposals, tiles, wavefront parallel processing

Keywords link to potential reviewers

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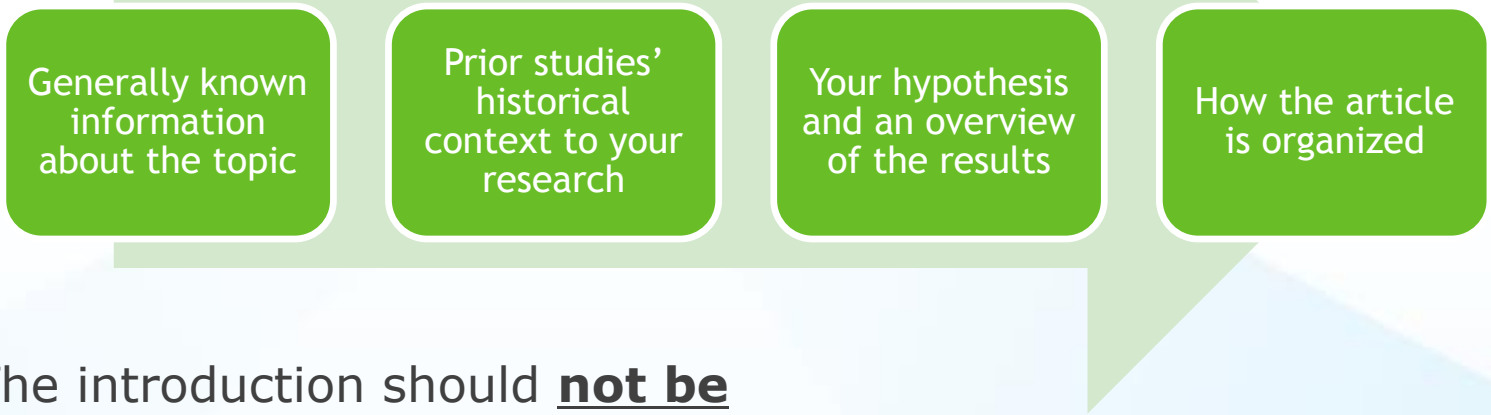
Paper Structure

Introduction

- A description of the problem you researched
- It should move step by step through, should be written in present tense:



- The introduction should **not be**
  - Too broad or vague
  - More then 2 pages

Paper Structure

Methodology

- Problem formulation and the processes used to solve the problem, prove or disprove the hypothesis
- Use illustrations to clarify ideas, support conclusions:

Tables
Present representative data or when exact values are important to show

Figures
Quickly show ideas/conclusions that would require detailed explanations

Fig. A

Graphs
Show relationships between data points or trends in data

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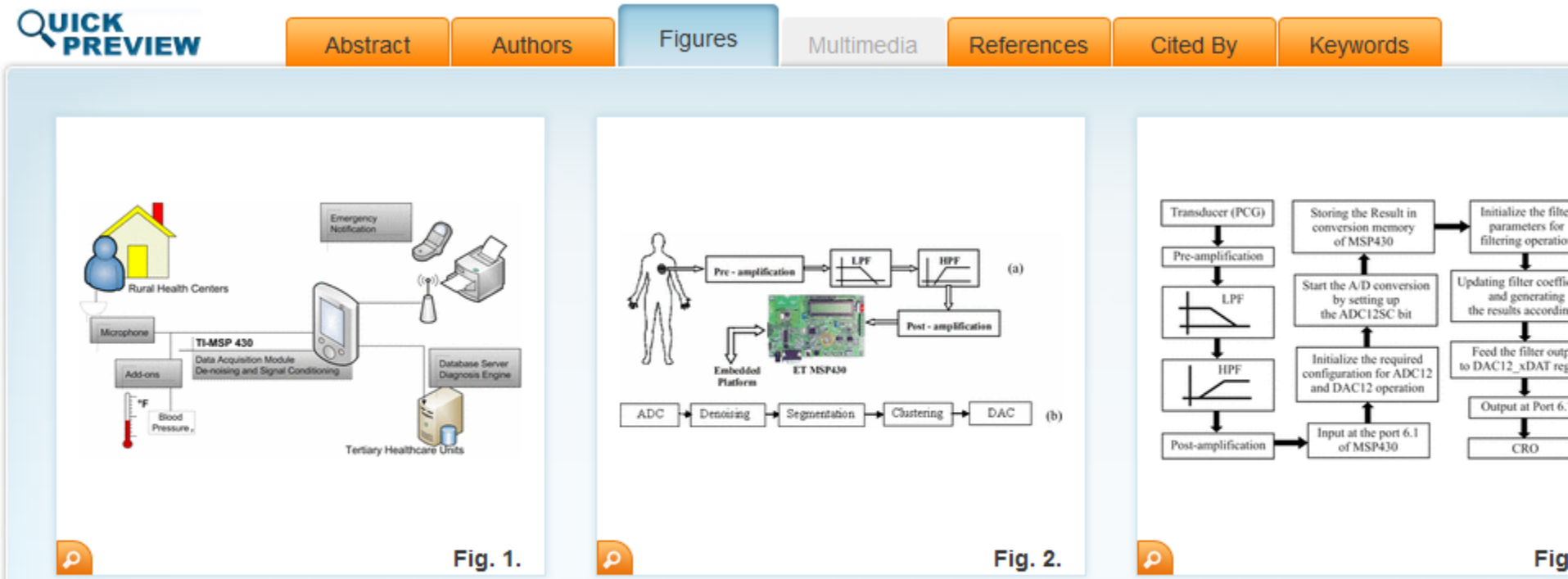

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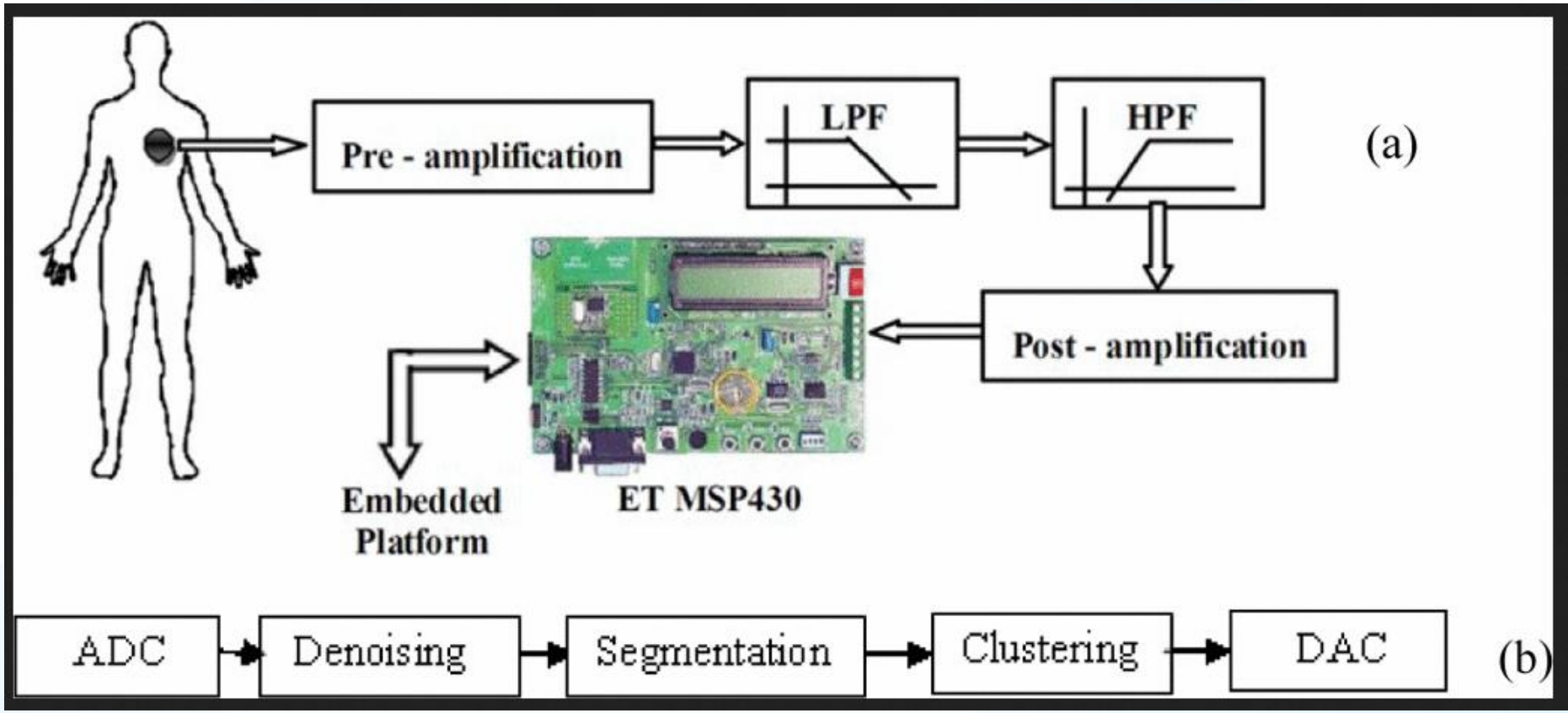

Equations in TeX Source in HTML version

▾ TeX Source

```
$$\eqalignno{{\rm HS}_{{\rm recover}} & \!=\! \left({1 - {{E\left\{{x_{{\rm
HS}}^2 \left(n \right)} \right\} - E\left\{{y^2 \left(n \right)} \right
\}}}\over{{E\left\{{x_{{\rm HS}}^2 \left(n \right)} \right\}}}} \right)
\!\times\! 100\%\cr &&{\hbox{(1)}}\cr {\rm NOISE}_{{\rm reduction}} &\!=\!
\left({{{E\left\{{x_{{\rm hs\_noi}}^2 \left(n \right)} \right\} - E\left\{{y^2
\left(n \right)} \right\}}}\over{{E\left\{{x_{{\rm hs\_noi}}^2 \left(n \right)}
\right\}}}} \right)\! \times\! 100\%\cr &&\hbox{(2)} }$$
```

and $\mathrm{NOISE}_{\mathrm{reduction}}$ are computed in terms of percentages (see Table 1)

$$\mathrm{HS}_{\mathrm{recover}} = \left(\frac{1 - E\left\{x_{\mathrm{HS}}^2(n)\right\} - E\left\{y^2(n)\right\}}{E\left\{x_{\mathrm{HS}}^2(n)\right\}} \right) \times 100\% \tag{1}$$

$$\mathrm{NOISE}_{\mathrm{reduction}} = \left(\frac{E\left\{x_{\mathrm{hs\_noi}}^2(n)\right\} - E\left\{y^2(n)\right\}}{E\left\{x_{\mathrm{hs\_noi}}^2(n)\right\}} \right) \times 100\% \tag{2}$$

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Paper Structure
Results/discussion

Demonstrate that you solved the problem or made significant advances

Results: Summarized Data

- Should be clear and concise
- Use figures or tables with narrative to illustrate findings

Discussion: Interprets the Results

- Why your research offers a new solution
- Acknowledge any limitations

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Paper Structure

Conclusion

- Explain what the research has achieved
  - As it relates to the problem stated in the Introduction
  - Revisit the key points in each section
  - Include a summary of the main findings, important conclusions and implications for the field
- Provide benefits and shortcomings of:
  - The solution presented
  - Your research and methodology
- Suggest future areas for research

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Paper Structure
References

- **Support and validate the hypothesis your research proves, disproves or resolves**
- There is no limit to the number of references
  - But use only those that directly support our work
- Ensure proper author attribution
  - Author name, *article title*, publication name, publisher, year published, volume, chapter and page number
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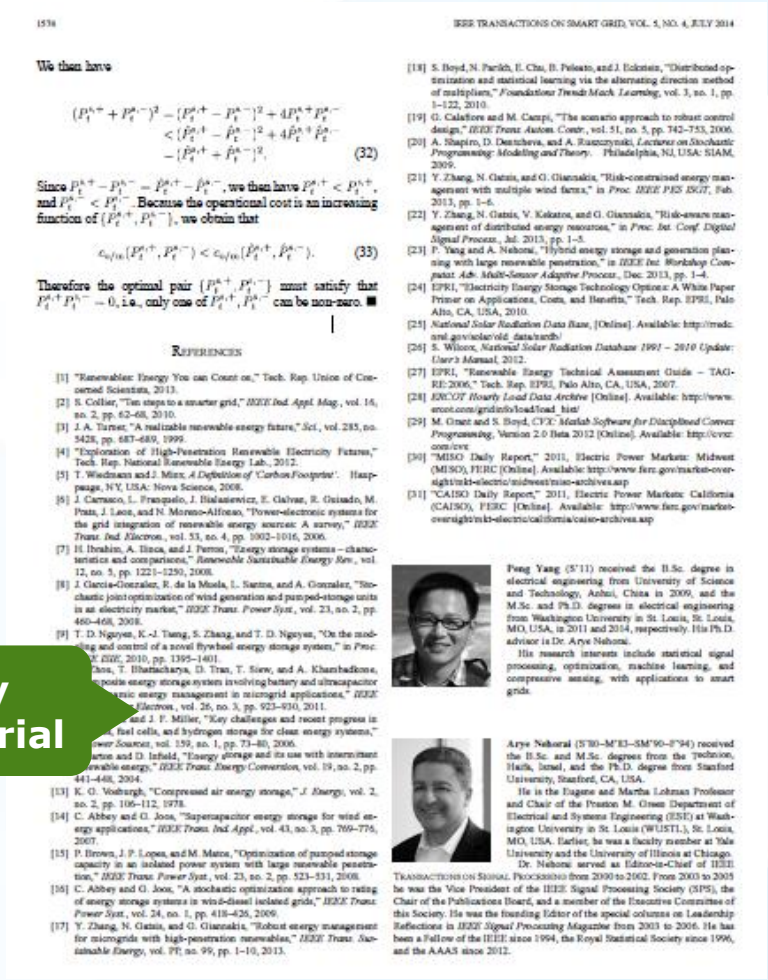

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We then have

$$(P_t^{s+}+P_t^{s-})^2-(P_t^{s+}-P_t^{s-})^2+4P_t^{s+}P_t^{s-} < (\hat{P}_t^{s+}-\hat{P}_t^{s-})^2+4\hat{P}_t^{s+}\hat{P}_t^{s-} -(\hat{P}_t^{s+}+\hat{P}_t^{s-})^2. \quad (32)$$

Since $P_t^{s+}-P_t^{s-}=\hat{P}_t^{s+}-\hat{P}_t^{s-}$, we then have $P_t^{s+}<P_t^{s+}$, and $P_t^{s-}<\hat{P}_t^{s-}$. Because the operational cost is an increasing function of $\{P_t^{s+},P_t^{s-}\}$, we obtain that

$$c_{o/a}(P_t^{s+},P_t^{s-})<c_{o/a}(\hat{P}_t^{s+},\hat{P}_t^{s-}). \quad (33)$$

Therefore the optimal pair $\{P_t^{s+},P_t^{s-}\}$ must satisfy that $P_t^{s+}P_t^{s-}=0$, i.e., only one of P_t^{s+}, P_t^{s-} can be non-zero. ■

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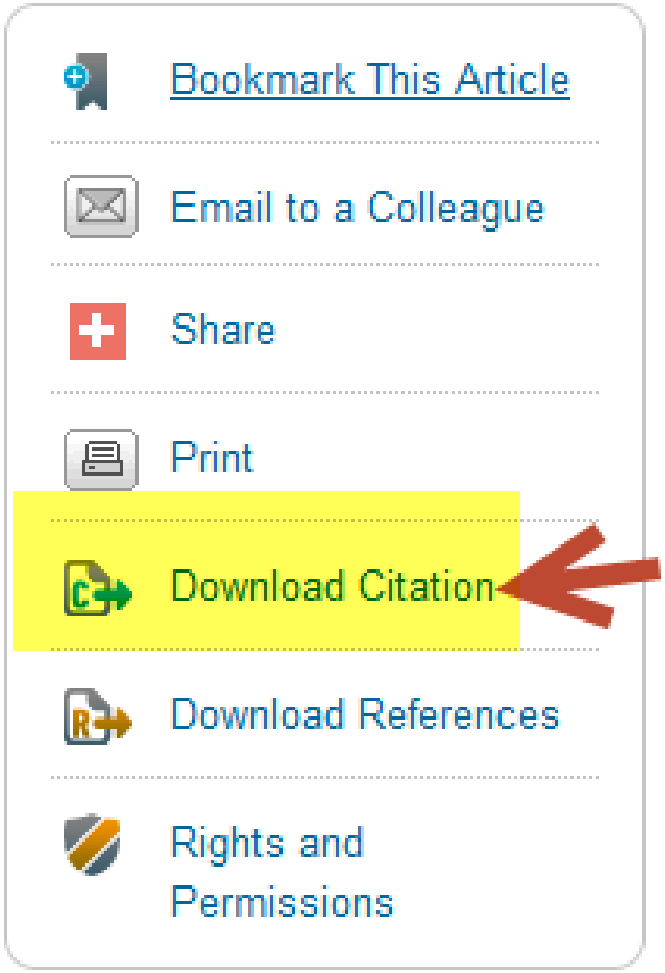

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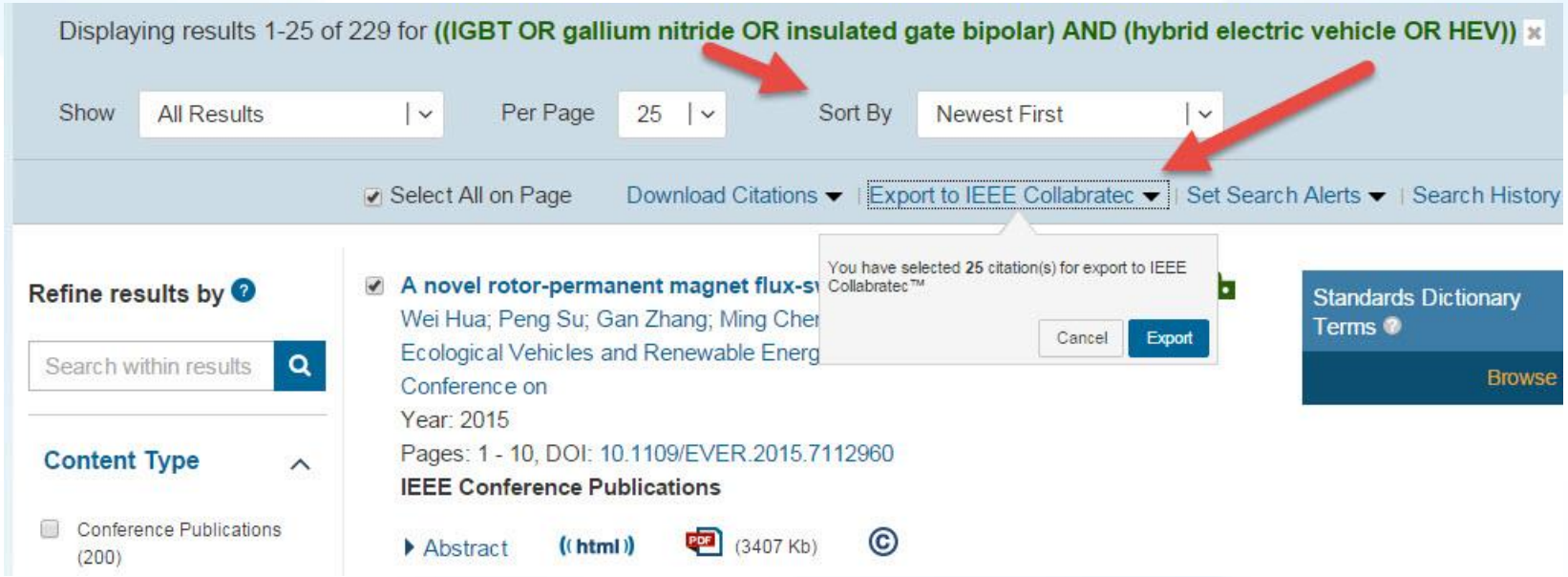

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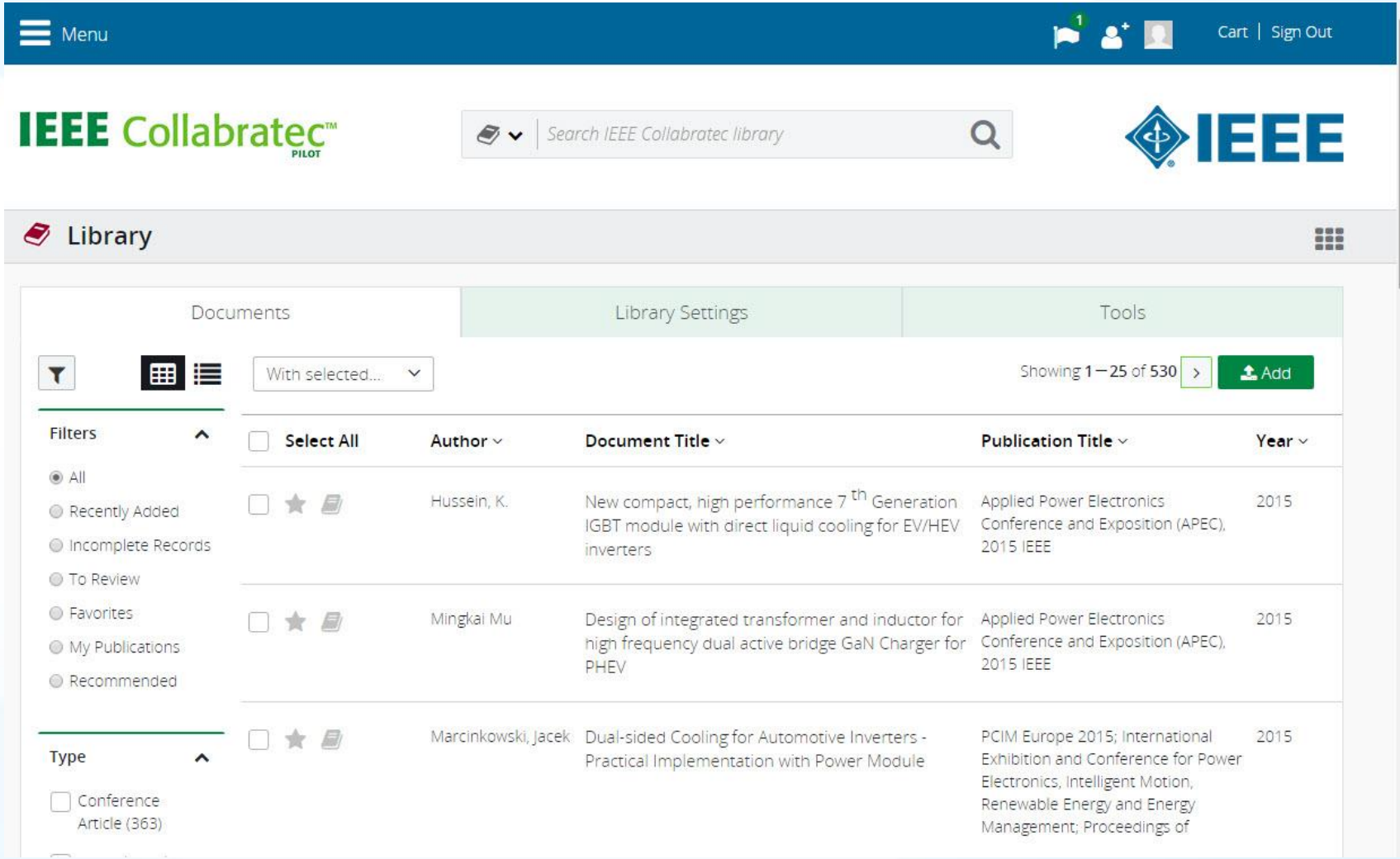

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- Is there enough detail?

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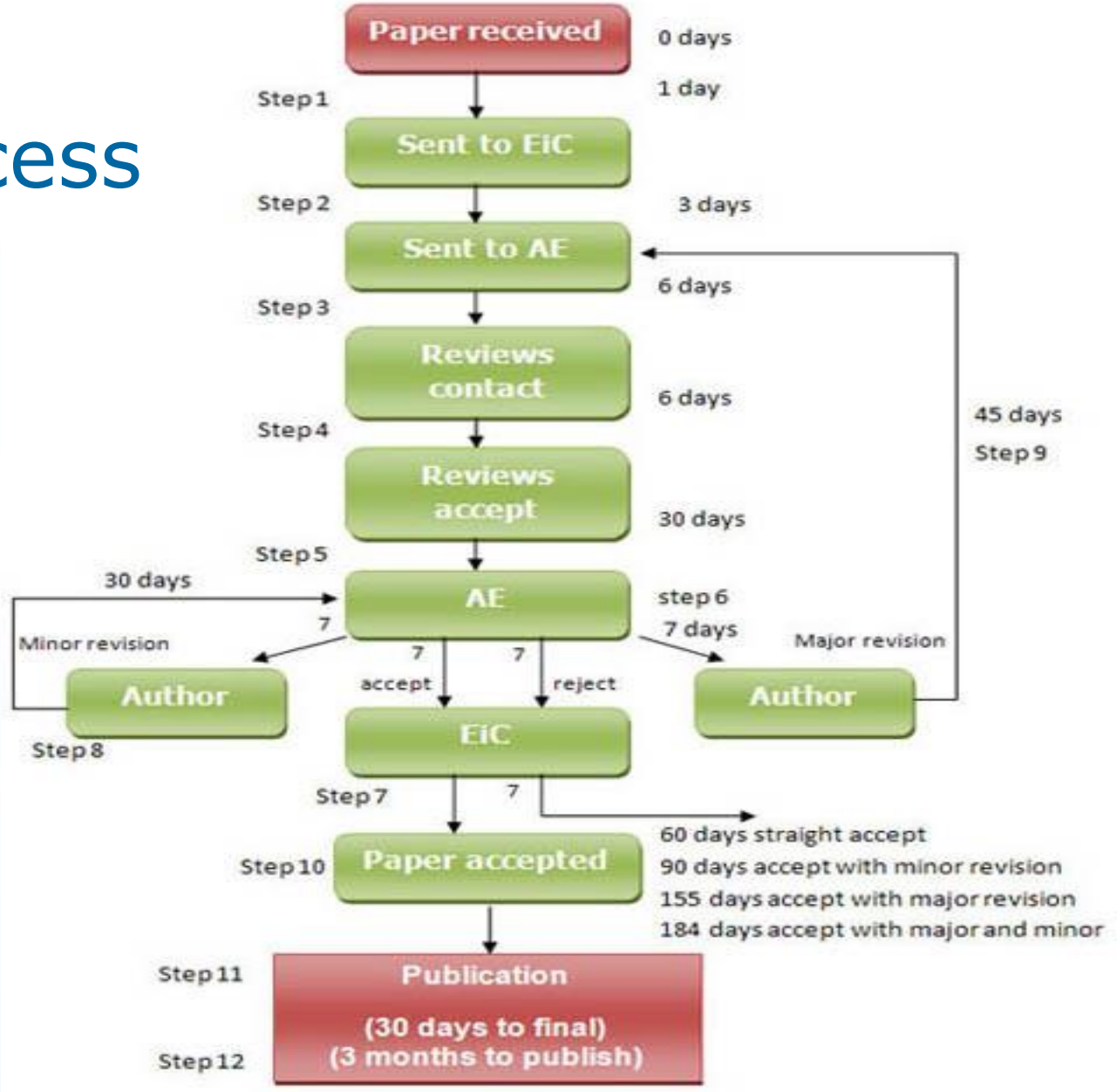
Review Process



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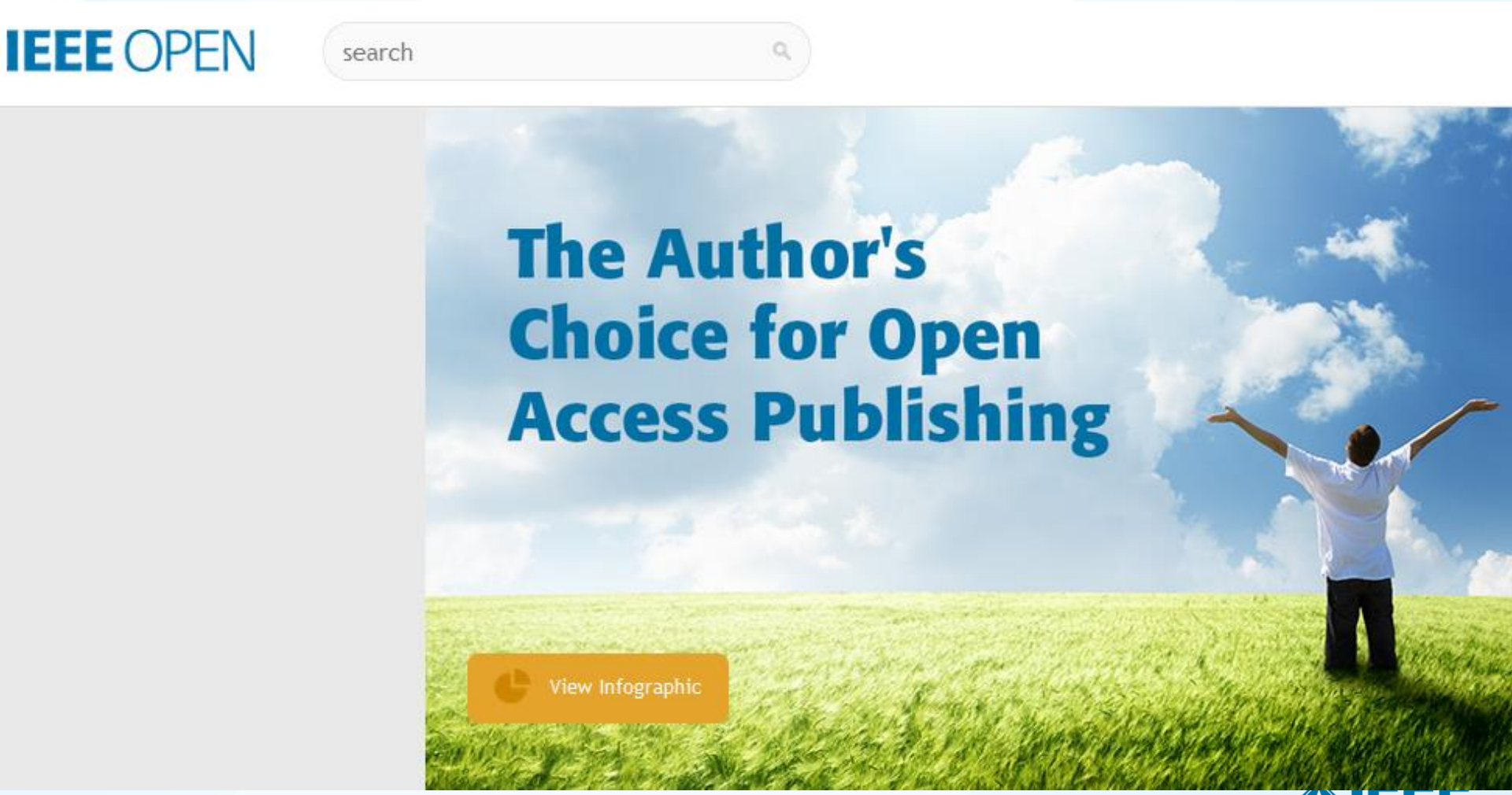

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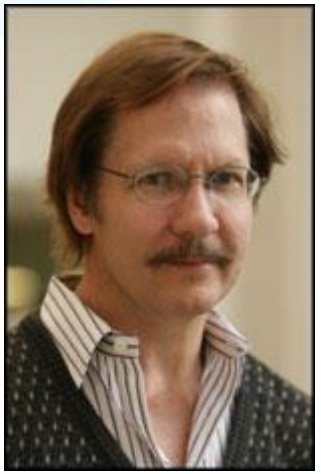

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Define abbreviations and acronyms the first time they are used in the text, even after they have already been defined in the abstract. Abbreviations such as IEEE, SI, ac, and dc do not have to be defined. Abbreviations that incorporate periods should not have spaces: write "C.N.R.S.," not "C. N. R. S." Do not use abbreviations in the title unless they are unavoidable (for example, "IEEE" in the title of this article).

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Use one space after periods and colons. Hyphenate complex modifiers: "zero-field-cooled magnetization." Avoid dangling participles, such as, "Using (1), the potential was calculated." [It is not clear who or what used (1).] Write instead, "The potential was calculated by using (1)," or "Using (1), we calculated the potential."

Use a zero before decimal points: "0.25," not ".25." Use "cm^3," not "cc." Indicate sample dimensions as "0.1 cm × 0.2 cm," not "0.1 × 0.2 cm^2." The abbreviation for "seconds" is "s," not "sec." Use "Wb/m^2" or "webers per square meter," not "webers/m^2." When expressing a range of values, write "7 to 9" or "7–9," not "7~9."

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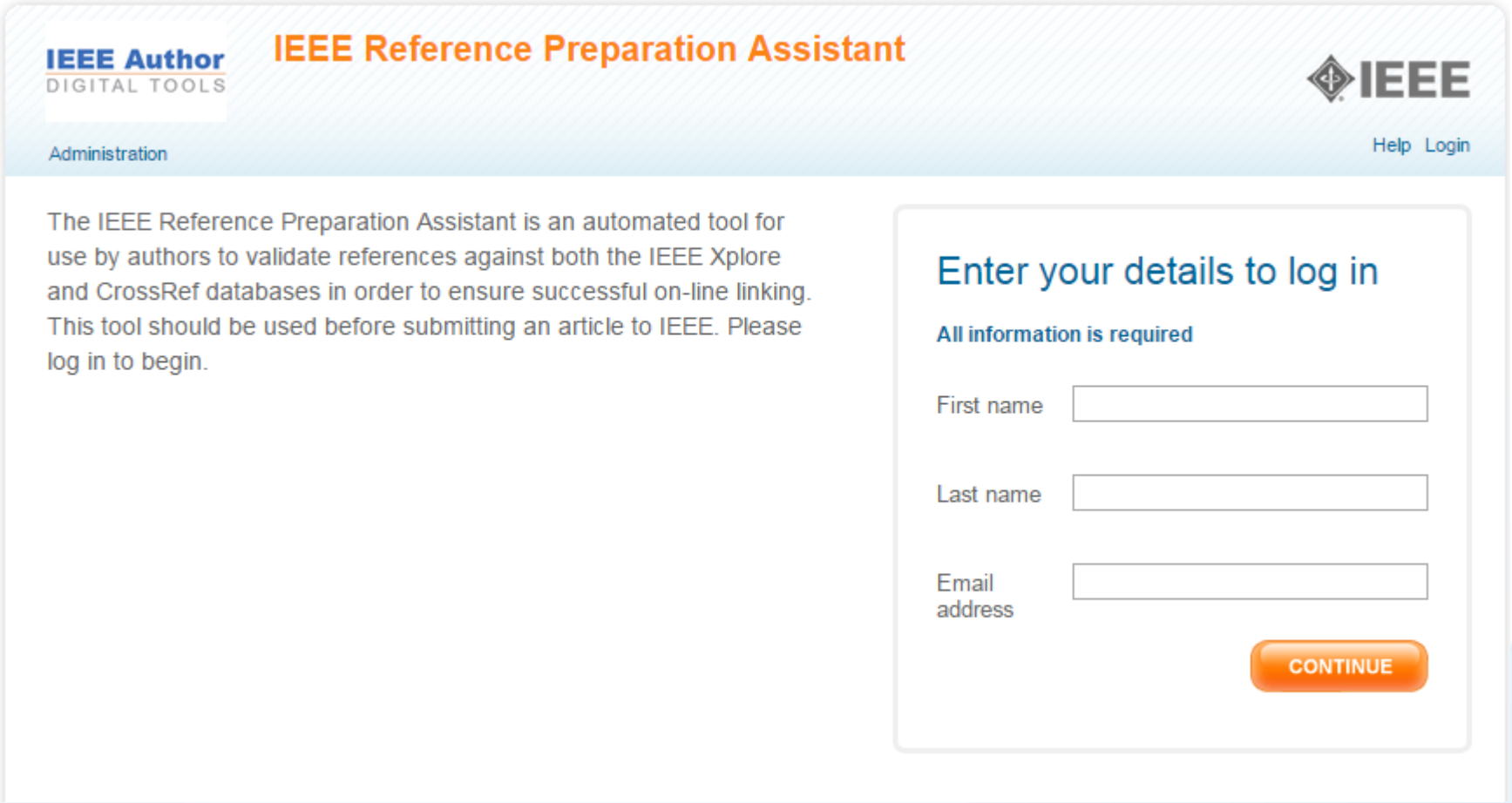

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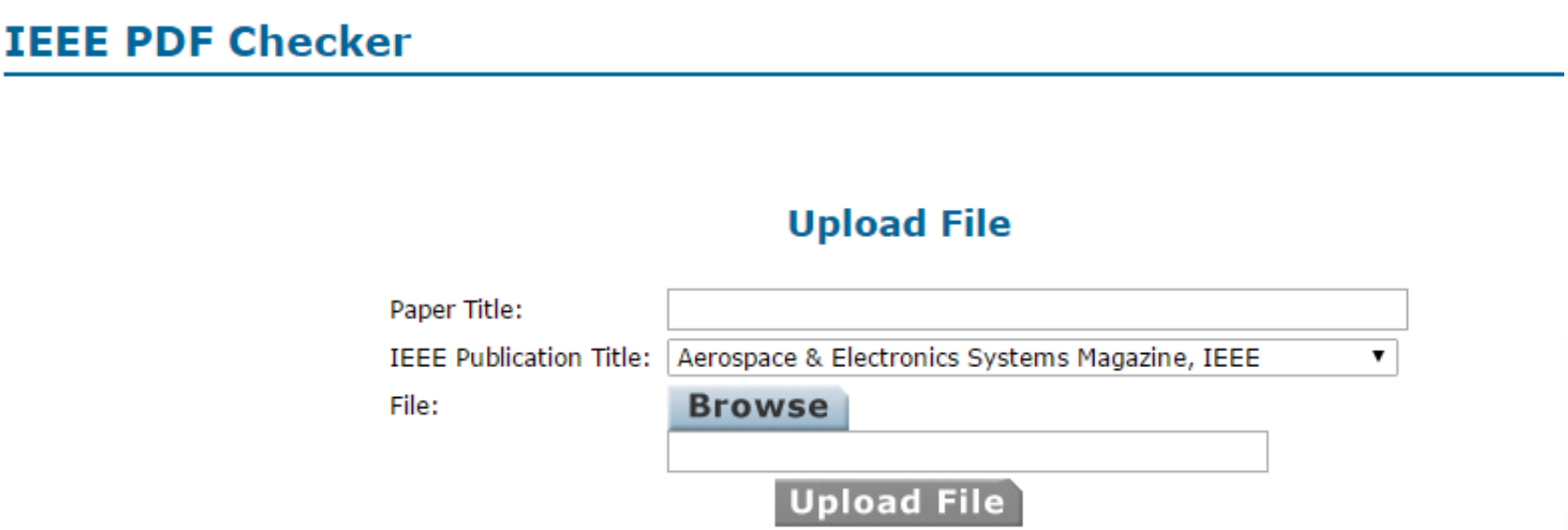

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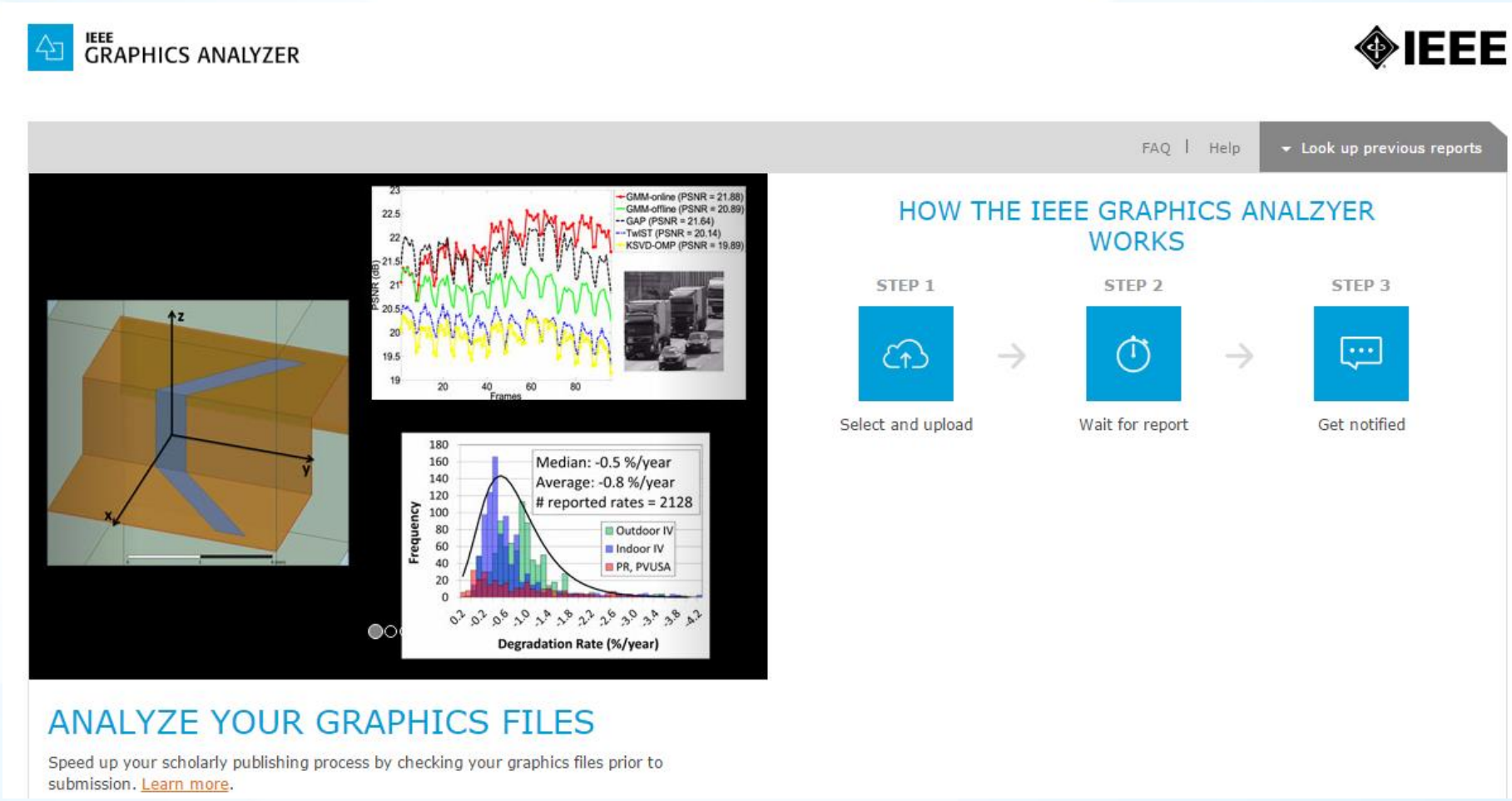

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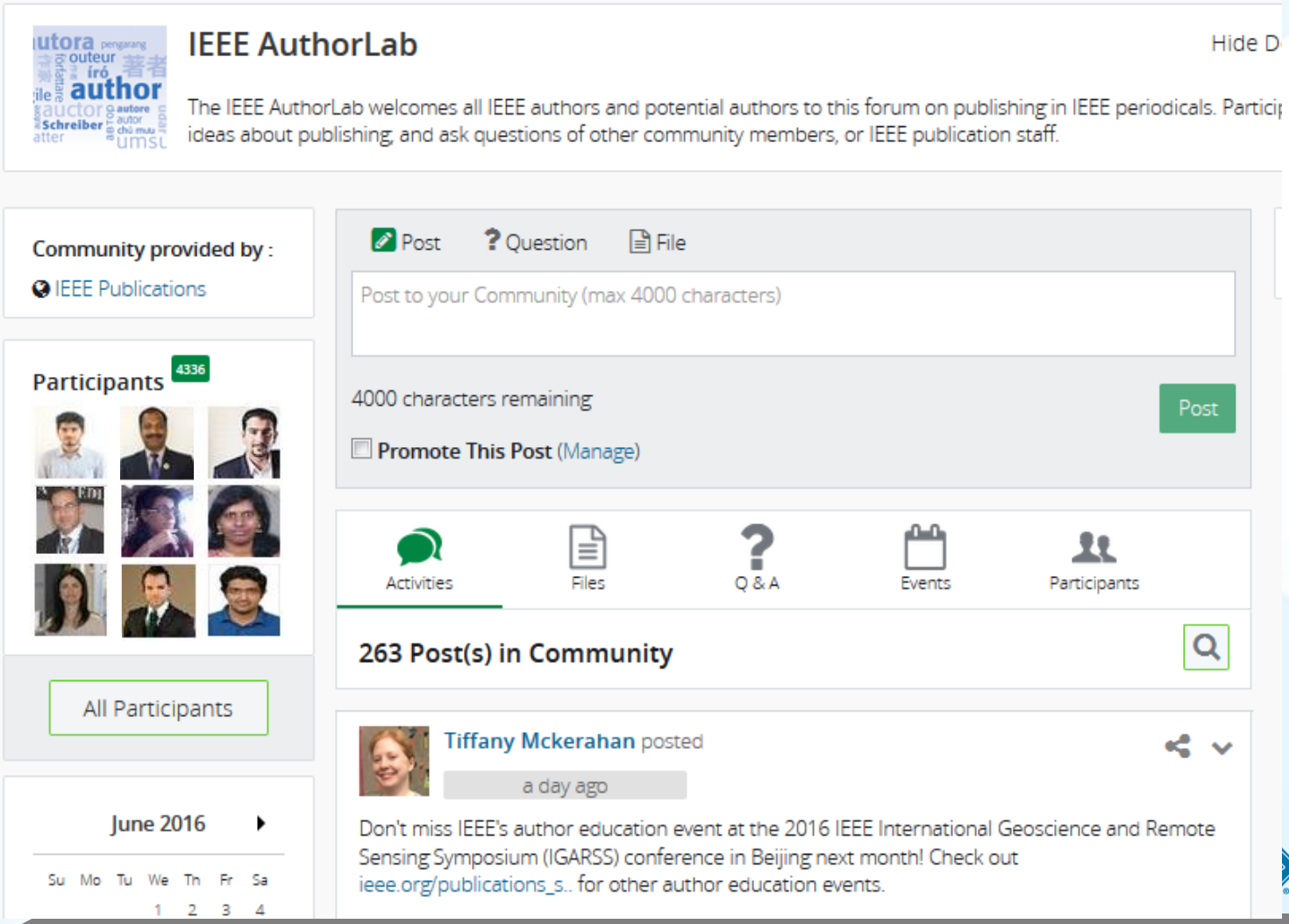

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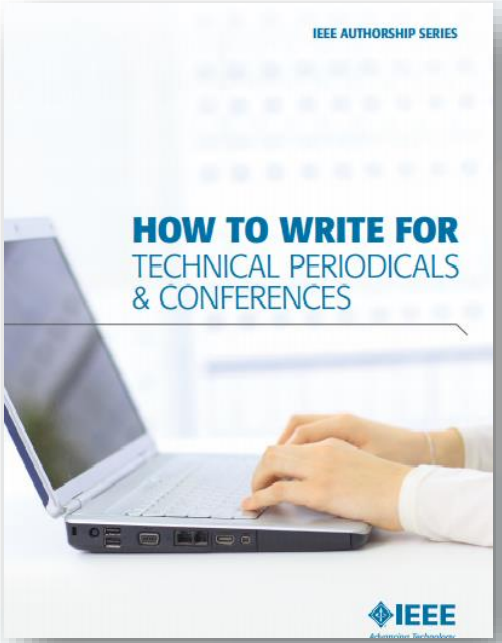

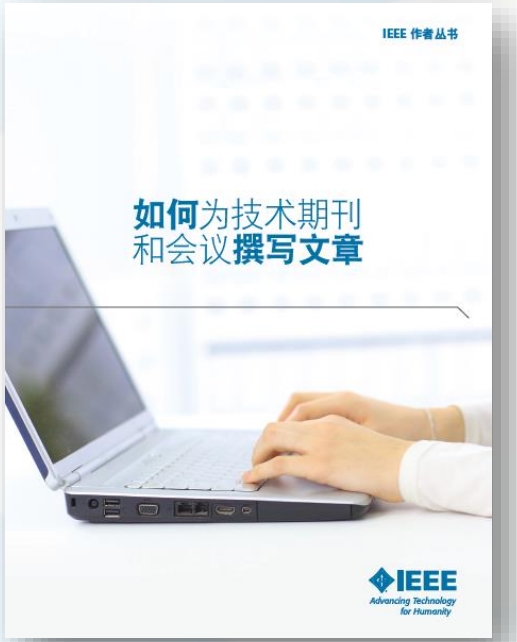

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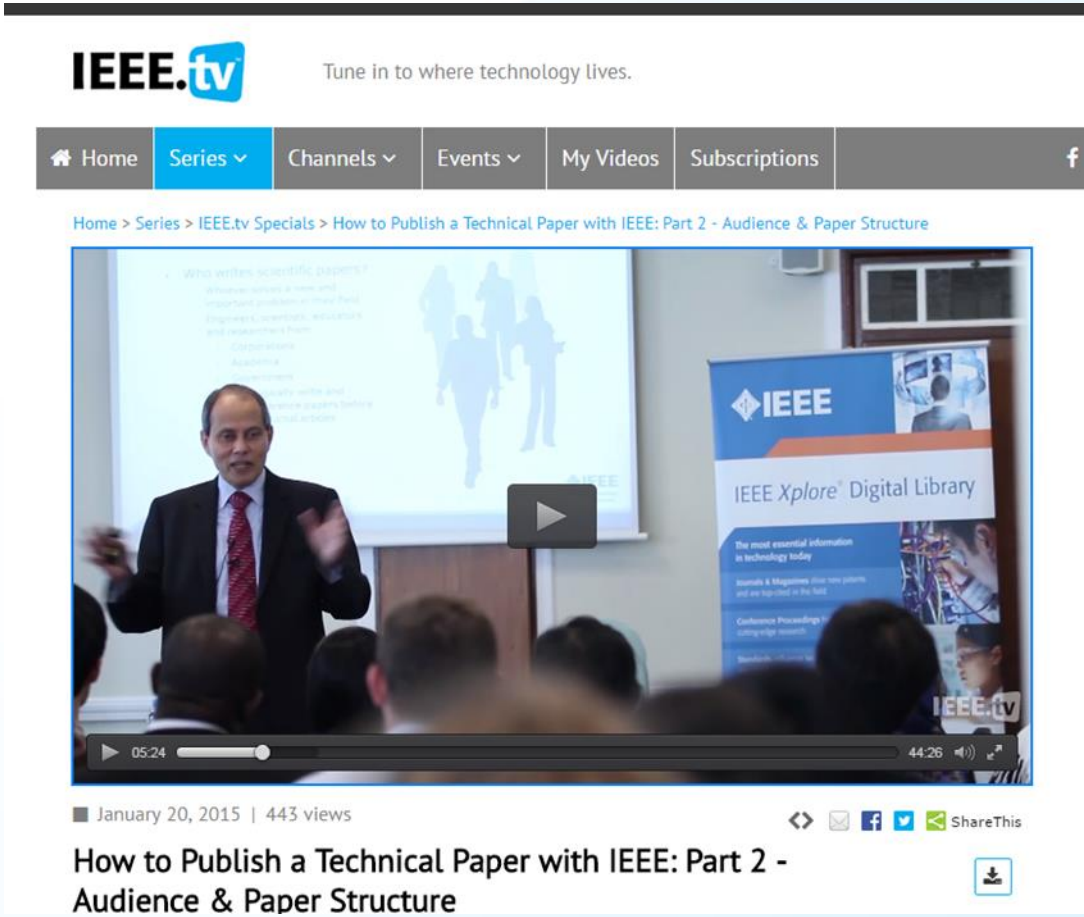

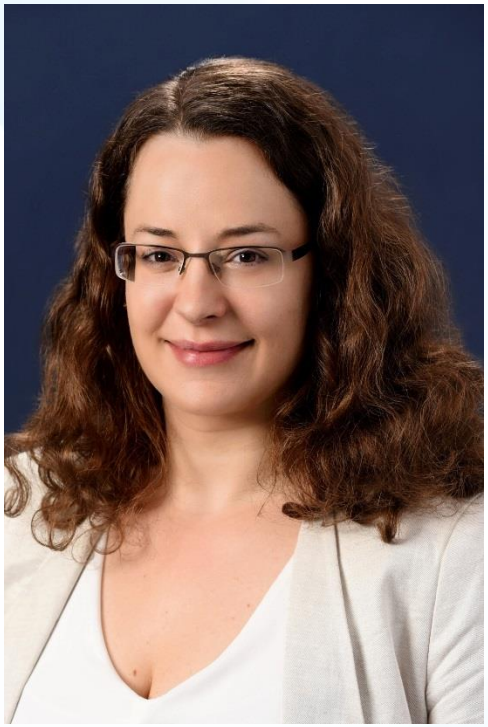

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