



## HOW DO I CREATE AN ACCOUNT & SUBMIT MY FIRST ABSTRACT?

|   |   |
|---|---|
| <p><b>Sign In</b></p> <p><b>What is your e-mail address?</b></p> <p>E-Mail Address: <input type="text"/></p> <p><b>Do you have an account with us?</b></p> <p><input checked="" type="radio"/> No, I have not registered on your site before.</p> <p><input type="radio"/> Yes, my password is <input type="text"/></p> <p><input type="checkbox"/> Remember me on this computer</p> <p><input type="button" value="Sign In To Account"/></p> <p>Forget your password? <a href="#">Send password to my e-mail</a></p> <p><a href="#">Click here if your e-mail address has changed since your last visit to our site.</a></p> <hr/> <p><small>For assistance using our logon application please contact our customer service.</small></p> | <p>STEP 1.</p> <p>On the Sign In page, provide your email address in the field provided.</p> <p>Select “No, I have not registered on your site before.”</p> <p>Click “Sign In To Account”</p> |
|---|---|

## Create Account Page

### Existing User

If you already have an account, click the button below.

Already Registered?

### New User

To set up your account fill in the form below

**NOTE: Your e-mail address serves as your login id.**

Note: Fields indicated by a red asterisk are required and must be completed in order to proceed.

E-Mail Address:\*

Enter Password:\*

Confirm Password:\*

First Name:\*

Last Name:\*

Organization Name:\*

Address (Line 1):\*

City:\*

State:

Postal Code:\*

Country:\*

I Am Also:  Author  Co-Author  Neither

For assistance using our logon application please contact our customer service.

STEP 2.

Supply the required fields in the form provided.

Select "Author" at the bottom of the form.

Click "Create Account"

## Abstract Authors

Please enter the desired author and co-authors for your abstract. Click the Continue button when you are finished entering the author and co-authors.

### Event Information

Event: EMI 2012: Engineering Mechanics Institute Conference  
Event Dates: Sunday, 06/17/12 04:00 PM - Wednesday, 06/20/12 04:30 PM

### Submitter Account

LAB, DYNAMO  
107 Cushing Hall  
Notre Dame, IN  
46556

Author/Co-Authors - [Add Author](#) | [Add Co-Author](#)

| Order | Name        | Title | Company                  | Type   | Presenter  |
|-------|-------------|-------|--------------------------|--------|--|
| 1     | LAB, DYNAMO |       | University of Notre Dame | Author | <input type="checkbox"/> <input type="button" value="Remove"/> |

[Modify Order](#)

For assistance using our speaker abstract management application please contact our customer service.

STEP 3.

You will be redirected to the Abstract Authors Page.

If you have additional authors, click the "Add Co-Author" hyperlink.

If you are the sole author, move to Step 5.

## Create Account Page

### New Co-Author

To set up your account fill in the form below

**NOTE: Your e-mail address serves as your login id.**

Note: Fields indicated by a red asterisk are required and must be completed in order to proceed.

First Name:\*

Last Name:\*

Organization Name:\*

Address (Line 1):\*

City:\*

State:

Postal Code:\*

Country:\*

For assistance using our logon application please contact our customer service.

STEP 4.

Enter the requested information for your co-author.

Click "Create Account."

(You will then be returned to the screen in Step 3, repeat this process until all co-authors are added.)

**Abstract Authors**  
Please enter the desired author and co-authors for your abstract. Click the Continue button when you are finished entering the author and co-authors.

**Event Information**  
Event: EMI 2012: Engineering Mechanics Institute Conference  
Event Dates: Sunday, 06/17/12 04:00 PM - Wednesday, 06/20/12 04:30 PM

**Author Account**  
DYNAMO  
Engineering Hall  
Notre Dame, IN

[Add Author](#) | [Add Co-Author](#)

| Order | Name          | Title | Company                  | Type      | Presenter  |
|-------|---------------|-------|--------------------------|-----------|--|
| 1     | LAB, DYNAMO   |       | University of Notre Dame | Author    | <input checked="" type="checkbox"/> <a href="#">Remove</a> |
| 2     | Lab 2, Dynamo |       | University of Notre Dame | Co-Author | <input type="checkbox"/> <a href="#">Remove</a>            |

[Update Order](#)

[Continue](#)

**STEP 5.**

Once all co-authors have been added, you can adjust their order by entering numerical values in the column to the left of their names.

Use the drop down menus under “Type” to specify the corresponding author by selecting “Author” and remaining authors should be “Co-Authors.” **You can specify only one “Author.”**

Check the box in the “Presenter” column to indicate who will be presenting the paper at EMI/PMC 2012. **You can specify only one “Presenter.”**

If any authors were entered in error, they can be removed by clicking the “Remove” button in the far right column.

When completed, click “Continue.”

**Add Abstract**  
Please enter the information for your abstract. Click the Continue button to proceed to the Abstract Review page.

**Event Information**  
Event: EMI 2012: Engineering Mechanics Institute Conference  
Event Dates: Sunday, 06/17/12 04:00 PM - Wednesday, 06/20/12 04:30 PM

Topic: \* Other

Title: \* A Wavelet-Based Framework for System Identification Under Trans

Abstract Text: \*  
 The Chicago Full-Scale Monitoring Program, a long-term effort for tall buildings, has provided significant insight into the in-situ behavior of dynamically-sensitive structures under wind. One interesting finding has been the effect of transient wind events like thunderstorms, causing significant accelerations that exceed those in stationary wind events with similar wind velocities. These events are characterized by rapid increases in wind speed, often accompanied by erratic variations in wind direction and tend to excite multiple modes with their broadband energy. As the majority of the United States design winds are driven by such events, these become particularly relevant to modern design practice. The recurrence of these types of responses raises interesting questions surrounding the methodologies used to predict accelerations in design and the extent to which these types of waveforms are accounted for by existing perception criteria. As the dynamic properties of the structure during large acceleration wind events are particularly important to validating design limit states, there is the need to develop new analysis frameworks to perform output only, evolutionary system identification on these transient wind events.  
 In general the dynamic analyses conducted on full-scale, wind-induced response data (in stationary events) provide dynamic properties extracted from highly averaged response artifacts like random decrement signatures or power spectral densities. In a transient analysis, the option for averaging is no longer available and randomness can no longer be eliminated in this way. Thus the authors will exploit the impulsive-features of these transient responses by presenting a two-tiered wavelet-based analysis framework. This methodology utilizes tailored parent wavelets to identify impulsive events in acceleration responses tied transient winds and then applies analytic signal theory to determine amplitude-dependent dynamic properties. Various metrics are introduced to quantify the degree of transience in response features, allowing these transient responses to be distinguished from other high-amplitude narrowband responses in stationary wind events. Comparisons with existing parent wavelets are offered to demonstrate the merits of tailored wavelets in this regard.  
 After validating the framework using simulated records, this paper will apply the analyses to full-scale data sets from a series of instrumented tall buildings to document their characteristics in transient wind events and various other features of interest, such as energy exchange between coupled modes.

Presentation Type: Not Required

[Continue](#)

**STEP 6.**

Under “Topic” use the drop down menu to select a General Session, Special Session or Mini-Symposium for your abstract.

In the “Title” field, provide the title of your abstract. Then type or paste the text of your abstract into the “Abstract Text” field. The tool bar above the field, similar to Microsoft Word’s menus, allow for basic formatting capabilities. **Note submissions are limited to 3000 Characters.** For “Presentation Type” select “Not Required” from the drop down menu.

Select “Continue.” (If the abstract is over length, upon clicking Continue you will be redirected with a red error message back to this screen and asked to shorten your abstract. After doing so, click “Continue.”)

Not LAB, DYNAMO?

**Abstract Review**  
Please review the information for your abstract. If there is any information that needs to be changed, click the edit link within the appropriate section. After making any necessary changes, click the Save Changes button to save your data.

**Event Information**  
Event: EMI 2012: Engineering Mechanics Institute Conference  
Event Dates: Sunday, 06/17/12 04:00 PM - Wednesday, 06/20/12 04:30 PM

**Submitter Account**  
LAB, DYNAMO  
107 Cushing Hall  
Notre Dame, IN  
46556

**Author/Co-Authors - Edit**

| Order | Name          | Title | Company                  | Type      | Presenter |
|-------|---------------|-------|--------------------------|-----------|-----------|
| 1     | LAB, DYNAMO   |       | University of Notre Dame | Author    | ??        |
| 2     | Lab 2, Dynamo |       | University of Notre Dame | Co-Author |           |

**Abstract - Edit**

Topic: Other  
Title: A Wavelet-Based Framework for System Identification Under Transient Wind Events

**Abstract Text:**

The Chicago Full Scale Monitoring Program, a long-term effort for tall buildings, has provided significant insight into the in-situ behavior of dynamically-sensitive structures under wind. One interesting finding has been the effect of transient wind events like thunderstorms, causing significant accelerations that exceed those in stationary wind events with similar wind velocities. These events are characterized by rapid increases in wind speed, often accompanied by erratic variations in wind direction and tend to excite multiple modes with their broadband energy. As the majority of the United States design winds are driven by such events, these become particularly relevant to modern design practice. The recurrence of these types of responses raises interesting questions surrounding the methodologies used to predict accelerations in design and the extent to which these types of waveforms are accounted for by existing perception criteria. As the dynamic properties of the structure during large acceleration wind events are particularly important to validating design limit states, there is the need to develop new analysis frameworks to perform output only, evolutionary system identification on these transient wind events.

In general the dynamic analyses conducted on full-scale, wind-induced response data (in stationary events) provide dynamic properties extracted from highly averaged response artifacts like random decrement signatures or power spectral densities. In a transient analysis, the option for averaging is no longer available and randomness can no longer be eliminated in this way. Thus the authors will exploit the impulsive features of these transient responses by presenting a two-tiered wavelet-based analysis framework. This methodology utilizes tailored parent wavelets to identify impulsive events in acceleration responses tied transient winds and then applies analytic signal theory to determine amplitude-dependent dynamic properties. Various metrics are introduced to quantify the degree of transience in response features, allowing these transient responses to be distinguished from other high-amplitude narrowband responses in stationary wind events. Comparisons with existing parent wavelets are offered to demonstrate the merits of tailored wavelets in this regard.

Presentation Type: Not Required

For assistance using our speaker abstract management application please contact our customer service.

## STEP 7.

You will have an opportunity to review your submission.

If the authors or abstract are in error, click the respective “Edit” hyperlink and make any necessary revisions.

When finished, click “Save Changes.”

Not LAB, DYNAMO?

**Submitter's Abstract List**  
Here is a list of the abstracts that you have submitted. Please select one to edit, or add a new abstract.

**Event Information**  
Event: EMI 2012: Engineering Mechanics Institute Conference  
Event Dates: Sunday, 06/17/12 04:00 PM - Wednesday, 06/20/12 04:30 PM

**Submitter Account**  
LAB, DYNAMO  
107 Cushing Hall  
Notre Dame, IN  
46556

**Abstract List - Add**

| Sequence | Title   | Review                                |
|----------|---|---------------------------------------|
| 369      | A Wavelet-Based Framework for System Identification Under Transient Wind Events | <input type="button" value="Review"/> |

For assistance using our speaker abstract management application please contact our customer service.

---

**Abstract Submission #369 Received**  
lroberts@nd.edu  
Sun, 18 Jun 2011 9:02 PM  
To: Structural Dynamics and Monitoring Laboratory - (dynamo)

Thank you for submitting the abstract entitled 'A Wavelet-Based Framework for System Identification Under Transient Wind Events' for event 'EMI 2012: Engineering Mechanics Institute Conference (7944) 06/17/12 04:00 PM - 06/20/12 04:30 PM'. It has been listed under topic 'Other'.

## STEP 8.

Once the abstract has been submitted, you will be returned to your Submitter Account homepage where the abstract will appear in your list of abstracts.

Note the abstract’s number (In Sequence Column) as this information will be required when final abstracts/optional papers are submitted. Any abstract listed in this menu can be reviewed by clicking the review button at the far right.

You should also receive a confirmation email.