

# **Novel Characterization Techniques and Advanced Cementitious Materials: Tribute to James J. Beaudoin**

Held at the ACI Fall Convention

ACI SP 312

Washington, DC, USA  
26 - 30 October 2014

## **Editors:**

**Mohammad Pour-Ghaz  
Ali R. Alizadeh  
Jason Weiss**

ISBN: 978-1-5108-3118-6

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2014) by American Concrete Institute  
All rights reserved.

Printed by Curran Associates, Inc. (2016)

For permission requests, please contact American Concrete Institute  
at the address below.

American Concrete Institute  
38800 Country Club Drive  
Farmington Hills, MI 48331 USA

Phone: (248) 848-3700

Fax: (248) 848-3701

BKStore@concrete.org

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

### SP-312—1

Evaluation of an Accelerated Characterization Method for.....1  
Pozzolanic Reactivity  
Authors: Saamiya Seraj, Maria C.G. Juenger

### SP-312—2

A Numerical Study of Polarization Tests Applied to Corrosion in .....16  
Reinforced Concrete  
Authors: J. Marchand, S. Laurens, Y. Protière, E. Samson

### SP-312—3

Three Dimensional Electrical Imaging of Moisture Ingress in Mortar .....27  
Authors: Danny Smyl, Milad Hallaji, Aku Seppänen and Mohammad Pour-Ghaz

### SP-312—4

Analysis of Drying Processes in Mortars with and without .....49  
Shrinkage Reducing Admixtures  
Authors: C. Villani, C. Lucero, D. Bentz, D. Hussey, D.L. Jacobson and W. J. Weiss

### SP-312—5

A Critical Look at Advanced Nano-To-Macro Scale Characterization.....74  
Techniques to Study Passivity and Corrosion of Steel in Concrete  
Authors: Pouria Ghods and O. Burkan Isgor

### SP-312—6

<sup>29</sup>Si NMR Investigations on Alkali Activated Fly Ash or Slag: .....91  
The Role of The Alkali Cation  
Authors: Akash Dakhane, Zihui Peng, Robert Marzke, and Narayanan Neithalath

### SP-312—7

Hydration of Cement Systems in the Presence of .....104  
Novel LDH Nanocomposites  
Authors: Laila Raki and Aali R. Alizadeh

### SP-312—8

Correlating Microstructural Features, Elastic, and .....116  
Viscoelastic Characteristics of Synthetic C-S-H  
Authors: S. H. Aboubakr, M. L. Begaye, E. Soliman and M. M. Reda Taha

### SP-312—9

Alkali Silica Reaction in Mortar at Room Temperature .....128  
Authors: Qiang Li, R. James Kirkpatrick, Leslie J. Struble

### SP-312—10

Dynamic and Quasi-Static Nanoindentation of C-S-H and C-A-S-H .....147  
Authors: William Hunnicutt, Paramita Mondal, and Leslie Struble