Curriculum Vitae

Jian-Ying Wu (Wu, J.Y.), PhD

Lecturer, Department of Civil Engineering, South China University of Technology, Guangzhou, 510640, P.R.China.

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Birthday:	June 15th, 1977
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EDUCATION BACKGROUND

Period:	April 2001 — June 2004
Qualification:	Ph.D. in Structural Engineering (November, 2004)
Affiliation:	Tongji University, Shanghai, China
Dissertation:	Damage energy release rate-based elastoplastic damage constitutive model for concrete and its applications to nonlinear analysis of structures (in Chinese, supervised by Prof. J. Li, Tongji University, Shanghai, China)
mini-Abstract:	In this dissertation an energy-based elastoplastic damage model which is capable of considering the structural damping in the material scale, was proposed for concrete, its numerical algorithm of implicit integration was developed, and after sufficiently verified the proposed model was applied to the concrete structures under static and dynamic loadings.

Period: September 1998 — March 2001
Qualification: Master degree in Structural Engineering (March, 2001)
Affiliation: Tongji University, Shanghai, China
Dissertation: Experimental and theoretical research on shear performances of special-shaped columns subjected to cyclic loading (in Chinese, supervised by Prof. J. Li, Tongji University, Shanghai, China)
mini-Abstract: In this dissertation six special-shaped reinforce concrete columns were experimentally tested under cyclic loadings to evaluate their shear responses and seismic performances. The specimens were analyzed by employing the softening truss theory, the parameter analysis then carried on, and the empirical formulation which can be used in the designs, was finally presented.

Period: September 1994 — July 1998
Qualification: Bachelor of Engineering in Civil Engineering (July, 1998)
Affiliation: Huazhong University of Science and Technology, Wuhan, China
Project: The architectural and structural designs of a school building (in Chinese, supervised by Assoc. Prof. Zhongxian Zhang, Huazhong University of Science and Technology, Wuhan, China)
mini-Abstract: In this project, the architectural and structural designs of a school building were considered, where the internal forces were calculated, the reinforced concrete columns, beams and slabs were designed, and the concerned drawings were plotted.

EMPLOYMENT HISTORY

Position: Assistant Professor (July 2004 — now)
Employer: South China University of Technology
Responsibilities: Conducting research mainly on

- Numerical modeling of concrete-like quasi-brittle materials;
- Nonlinear analysis of structures under severe circumstances;
- Seismic performances of steel and concrete joints;

and teaching the courses of

- "Basic Theory of Reinforced Concrete" for graduates and undergraduates since 2005;
- "Designs of Reinforced Concrete Structures" for undergraduates since 2005.

ENGLISH CAPABILITY

- Scored "Excellent" in the examination of CET4 and CET6 (Chinese English Test)
- Skilled in reading, translating and writing scientific English papers.

COMPUTER SKILLS

- Proficient in in ABAQUS and DIANA, and be verse in programming Fortran codes for user-defined material and Python codes for user-defined Graphical User Interfaces (GUI);
- Familiar with ADINA, MIDAS/Gen, MSC.PATRAN, MSC.PATRAN, and so on.
- Skilled in MATLAB and Origin; Proficient in writing scientific papers using LaTeX.

MAIN AWARDS AND ACHIEVEMENTS

- *Award for Excellent Doctorial Dissertation in Shanghai* (2006)
- *The Second Award for Advancement of Science and Technology Award in Guangdong Province China* (2006): Rank 9th
- *Award for Excellent Paper and Presentation in 9th Chinese Conference of Basic Theories and Engineering Applications of Concrete (Xi'an, Shaanxi, China)*: Wu, J.Y. and Li, J., 2006. "Effective space anisotropic damage model and its applications in concrete"
- *Award for Excellent Teacher in Charge of Class in South China University of China* (2005)
- *Award for Excellent Doctorial Dissertation in Tongji University* (2005)
- *Award of Butler Scholarship for Graduate Student in Tongji University* (2002)
- *Award of Guanghua Scholarship for Graduate Student in Tongji University* (1999)
- *Award for Excellent Student in Huazhong University of Science and Technology* (1996)
- *Invention patent in China* (No. ZL 2004 1 0051328.2): Wu, B. and Wu, J.Y., 2004. "Steel Arch Concrete Beam"
- *Building Code "Specification for R.C. Structures with Special-shaped Columns" in Shanghai* (DG/TJ08-009-2002, J10208-2002): Rank 7th in total of 14 authors.

SUMMARY OF DOCTORIAL DISSERTATION

In this dissertation based on the thermodynamics of irreversible process and the internal variable theory, a "genuine" elastoplastic damage model for concrete which is capable of considering the damping directly on the material scale, is proposed within the framework of continuum damage mechanics (CDM), and applied to nonlinear analysis of structures under the static and dynamic loadings. After the careful and deep reviews in Chapter 1 of the existing damage mechanics model in the literature, the characteristics and deficient are thoroughly discussed and it is realized that, despite the substantial and noteworthy research efforts, the constitutive modeling of concrete like quasi-brittle materials, even for the isotropic damage model, still remains a great challenge. The rest of the dissertation is then devoted to the detailed discussions of the proposed model, which is organized as follows.

- In Chapter 2, the physical and thermodynamical principles which any constitutive law should obeyed, some general concepts of continuum damage mechanics are reviewed, and the theoretical basis of CDM are then introduced. Based on the irreversible thermodynamics and internal variables, the basic formulations of the elastoplastic damage model with one single damage scalar are derived, and the general steps for the constitutive modeling based on continuum damage mechanics are then summarized.

- In Chapter 3, two inherent failure mechanisms, namely that the tensile damage under the dominantly positive stress or strain states and shear damage under the purely negative stress or strain states (here, the case of hydro-pressure is excluded), are identified as the determinative factors which are of great significant importance in the description of the nonlinear behavior of concrete. Correspondingly two damage scalars, i.e. the tensile damage variable and shear damage variable are adopted to describe the degrading of macro-mechanical properties of concrete material. On the decomposition of effective stress tensor, the elastic Helmholtz free energy is defined, and the elastoplastic damage constitutive relation with internal variables is then obtained in accordance with the thermodynamics. By assuming the Drucker-Prager type plastic potential function which is appropriate for concrete, the explicit expressions for elastoplastic Helmholtz free energy and the damage forces (damage energy release rates) are derived. The damage criteria can therefore be established in terms of the conjugated damage forces, based on which the evolution laws for the damage variables are obtained through the principle of maximum damage dissipations (i.e. the normal evolution rule).

  Considering the different application scopes, in the dissertation two methods are presented to take the irreversible deformations upon unloading. In the first one, the

effective stress space plasticity is employed to determine the evolution law for the plastic strains, and the resulted model is here name theoretical elastoplastic damage model which is theoretically consolidate but a little complex in the formulations and the corresponding numerical algorithm (see the next chapter). In the second method considering the future applications to the large time-consuming analysis of concrete structures, while still have clear physical meaning the above evolution law for plastic strains is greatly simplified, and the so-called empirical elastoplastic damage model is also established. It is worthy to be noted that, the parameters in both models are inter-related and all can be calibrated through the standard test of plain concrete.

Also, the continuum tangent modulus corresponding to the above two models are derived, which can be used to determine the localization aspects of the proposed models. However, the localization characteristics are not discussed in this dissertation and are left to some of the future extensions.

- Chapter 4 is devoted to developing the numerical algorithms and implementations of above theoretic and empirical elastoplastic damage model. By decoupling of plastic strains and damage evolution, the operator-split algorithm is employed for the theoretical elastoplastic damage model, and the resulting implicit integration scheme includes three steps of elastic predictor, plastic corrector, and damage corrector. The elastic predictor and plastic corrector steps actually constitute the standard problem which can be solved by the classical return mapping integration algorithm, but in the effective stress space. In views of characteristics of the adopted plastic yield function which concerned with the principal values of effective stress, the spectral decomposition based return mapping algorithm is developed, which greatly enhances the computational efficiency in the updating the effective stress and plastic strains. Meanwhile, for empirical elastoplastic damage model the implicit integration algorithm is established in accordance with the backward Euler method.

  Corresponding to the continuum tangent modulus obtained in Chapter 3, the algorithm consistent tangent modulus are derived to ensure the quadratic convergence during stress updating. For coding conveniently, after some basic tensor operations and transformations techniques among tensors, matrixes and vectors are given out, the interface of the presented elastoplastic damage model to other general nonlinear analysis program packages are also provided herein.

- Based on their respective numerical algorithms, the nonlinear finite element program is coded the proposed models. And then the proposed two models are sufficiently verified in Chapter 5, by applied to simulate the plain concrete experimental tests on the material and structural scales. The predictive results confirm the validity of the presented models and the effectiveness of corresponding numerical algorithms, and demonstrate the capabilities of the proposed models for describing most of the

nonlinear behavior of concrete, such as the stiffness degradation, the strength softening, the strength and ductility enhancement under lateral compressive confinement, the strength decay induced by orthogonal tensile cracking, and the unilateral effect under cyclic loading, etc.

An interesting conclusion is that, if the parameter in one model is determined interrelated to the corresponding one in the other model, rather similar results are obtained by both the methods describing the irreversible deformations, and not surprisingly, the empirical model is computationally efficient. Therefore, in the later chapters, only the empirical elastoplastic damage model will be adopted in the nonlinear analysis of large (reinforced) concrete structures under static loadings and dynamical excitations.

- In Chapter 6, the proposed empirical elastoplastic damage model for concrete are applied to the nonlinear analysis of reinforced concrete structures under static loadings, including panels, beams and shearwalls, in which the used model parameters are calibrated taking the interactions between steel rebar and concrete material into consideration.

  The numerical predictions also agree fairly well with the experimental data, which further consolidate the validity of present models, and demonstrate great advantage over the conventional methods in the sense that, it can provide real-time evolutions of the damage distribution in the structures, from which the detects and the corresponding rehabilitations can be studied systematically.

- The energy dissipations by the motion of the structure, generally referred as damping, is of great significance to the nonlinear behaviors of civil engineering structures subjected to dynamical loadings. In Chapter 7 based on the proposed elastoplastic damage model, the traditional Rayleigh damping model in linear analysis is extended into a viscous-elastic-damage damping model, leading to a unified elastoplastic damage model which can consider the damping on the material constitutive scale and directly applied to the nonlinear analysis of concrete structures under dynamical loadings while no additional structural damping like the Rayleigh damping is required.

  The above unified elastoplastic damage model and the corresponding HHT-α numerical method are adopted to analyze the Koyna concrete gravity dam under severe earthquake motions, whose results show the validity of the presented damping model as well as the proposed elastoplastic damage models for concrete.

- In Chapter 8, all the concerned jobs are summarized, a few conclusions are obtained, and some forthcoming jobs are prospected.

LIST OF PUBLICATIONS

International Journal Papers

- Wu, J. Y. and Li, J., 2007. Unified plastic-damage model for concrete and its Applications to dynamic nonlinear Analysis of Structures. *Engineering Mechanics and Structures*, 25(5).

- Wu, J. Y., Li, J. and Faria, R., 2006. An energy release rate-based plastic-damage model for concrete. *International Journal of Solids and Structures*, 43(3-4): 583-612.

- Li, J. and Wu, J. Y., 2006. Energy-based CDM model for nonlinear analysis of confined concrete. *ACI SP-238*, 13: 209-222.

International Conferences Papers

- Wu, J. Y. and Li, J., 2006. On a new framework for anisotropic damage model. In: C.A. Mota Soares et.al. (eds.), *Proc. of III European Conference on Computational Mechanics: Solids, Structures and Coupled Problems in Engineering*, Lisbon, Portugal.

- Wu, J. Y. and Li, J., 2006. A Unified plastic-damage model for concrete and its applications. In: *Proc. of 9th International Symposium on Structural Engineering for Young Experts*, Fuzhou & Xiamen, China: 313-319.

- Wu, J. Y. and Li, J., 2006. Stress-based effective space anisotropic damage model for concrete. In: M.W. Yuan et al. (Eds.), *Proc. of 10th Enhancement and Promotion of Computational Methods in Engineering and Science*, Sanya, China.

- Wu, J. Y., Li, J. and Faria, R., 2005. An energy based plastic-damage model for concrete. In: *Proc. Congreso de Métodos Numéricos en Ingeniería (CD-ROM)*, Granada, España.

- Wu, J. Y. and Li, J., 2005. CDM-base damping: incorporated into a plastic-damage Model for concrete and its applications to structures, In: J. Awrejcewicz, D., Sendkowski and J., Mrozowski (eds.), *Proc. of 8th Conference on Dynamical System Theory and Applications*, Łódź, Poland: 841-848.

- Li, J. and Wu, J. Y., 2004. Energy-based CDM model for nonlinear analysis of confined concrete structures. In: Y. Xiao, et al. (eds.), *Proc. of International Symposium on Confined Concrete*, Changsha, China.

- Wu, J. Y. and Li, J., 2004. A new energy-based elastoplastic damage model for concrete. In: Y. Xian et al. (Eds), *Proc. of XXI International Conference of Theoretical and Applied Mechanics*, Warsaw, Poland.

Journal Papers in Chinese

- Wu, J. Y., 2006. Projection operators or rank-two tensor and its rate tensor and their applications. Chinese Journal of Computational Mechanics, accepted and in press.

- Wu, J. Y. and Li, J., 2006. Elastoplastic damage constitutive model for concrete considering the strain rate effect under dynamic loading. Journal of Tongji University, 34(11): 1427-1430.

- Wu, J. Y. and Li, J., 2006. Damping-included elastoplastic damage model for concrete. Engineering Mechanics, 23(11): 116-121.

- Wu, J. Y. and Li, J., 2005. Unified elastoplastic damage constitutive relations model for concrete. Journal of Architecture and Civil Engineering, 22(4): 15-21.

- Li, J. and Wu, J. Y.,2005. Elastoplastic damage constitutive model for concrete based on damage energy release rates, Part I: Basic formulations. China Civil Engineering Journal, 38(9): 14-20.

- Wu, J. Y. and Li, J., 2005. Elastoplastic damage constitutive model for concrete based on damage energy release rates, Part II: Numerical algorithm and verifications, 38(9): 21-27.

- Wu, J. Y. and Li, J., 2004. Continuum damage mechanics model and smeared crack, 32(11)，1428-1432.

- Wu, J. Y. and Li, J., 2002. Shearing analysis of reinforced concrete special-shaped section columns. Structural Engineers, 61(2): 17-24.

- Li, J., Wu, J. Y., Zhou, D. Y. and Nie, L. P. 2002. Experimental research on wide flange special-shaped section columns subjected to cyclic loading. Journal of Building Structures, 23(1): 9-15.

Conference Papers in Chinese

- Wu, J. Y. and Li, J., 2006. CDM model based nonlinear analysis of RC structures. In: Proceeding of 10th Chinese Conference of Basic Theories and Engineering Applications of Concrete, Xi'an, Shaanxi, China: 203-206.

- Wu, J. Y. and Li, J., 2005. Nonlinear analysis of concrete structures under static and dynamic loadings. In: Proceeding of 2th Chinese Conference of Structural Computation Theories and Engineering Applications, Fuzhou, Fujian, China: 16-21.

- Wu, J. Y. and Li, J., 2004. CDM model based nonlinear analysis of RC structures. In: Proceeding of 6th Chinese Conference of Basic Theories and Engineering Applications of Concrete, Chongqing, China: 166-172.

- Wu, J. Y. and Li, J., 2003. Damage constitutive model for concrete under multiaxial stress states. In: Proceeding of 6th Chinese Conference of Basic Theories and Engineering Applications of Concrete, Shanghai, China: 1-7.

Submitted International Journal Papers

- Wu, J. Y. and Li, J., 2006. On effective space anisotropic damage model. Submitted to *International Journal of Solids and Structures*.

- Wu, J. Y. and Li, J., 2006. On the mathematical and thermodynamical aspects of strain equivalence based anisotropic damage model. Submitted to *Mechanics of Materials*.

- Wu, J. Y. and Li, J., 2007. Stress-based elastic anisotropic unilateral degradation model for concrete. In: *6th International Conference on Fracture Mechanics of Concrete and Concrete Structures (FraMCoS-6)*, Catania, Italy.

International Journal Papers in Preparation

- Wu, J. Y., in preparation. On mesoscopic modeling the nonlinear behavior of concrete as multi-phase composite material. To be submitted to International Journal of Solids and Structures.

- Wu, J. Y., in preparation. On general framework of elastic unilateral degradation. I: Stress- and strain-based formulations. To be submitted to International Journal of Solids and Structures.

- Wu, J. Y., in preparation. On general framework of elastic unilateral degradation. II: Implicit integration and applications to concrete. To be submitted to International Journal of Solids and Structures.

INTERNATIONAL CONFERENCES PARTICIPATED

- International Symposium on Confined Concrete (ISCC2004), Changsha, China, June 2004.

- XXI International Conference of Theoretical and Applied Mechanics (ICTAM), Warsaw, Poland, August 2004.

- Congreso de M´éetodos Numéricos en Ingeniería 2005, Granada, España, July 2005.

- 8th Conference on Dynamical System Theory and Applications (DSTA2005), Łódź, Poland, December 2005.
- III European Conference on Computational Mechanics: Solids, Structures and Coupled Problems in Engineering (ECCM2006), Lisbon, Portugal, June 2006.
- Ninth International Symposium on Structural Engineering for Young Experts, Fuzhou & Xiamen, China, August 2006.
- 10th Enhancement and Promotion of Computational Methods in Engineering and Science (EPMESCX), Sanya, China, August 2006.

RESEARCH INTEREST

- Mainly focus on: Damage mechanics (continuum and micromechanical), computational concrete mechanics, concrete modeling, nonlinear analysis of structures, etc.
- Other interests: Solid mechanics, computational mechanics, finite element method, and applications of computer aided engineering (CAE) softwares, etc.

INTERESTS AND HOBBIES

- Sports: Football, badminton, table tenses, ...
- Music: Metallic, Pink Floyd, U2, Scorpions, Beyond...
- Traveling: Natural sceneries in China, such as Lin-zhi, Jiu-zai-gou, ...

个 人 简 历

个人信息

姓　　名	吴 建 营	性　　别	男
出生日期	1977年6月	籍　　贯	湖北省麻城市
民　　族	汉族	最高学位	工学博士
毕业学校	同济大学	指导教师	李杰教授
专业方向	结构工程	毕业时间	2004年6月
联系电话	020-22236677	手　　机	13580331551
个人主页	http://wu.mech.cn	电子邮箱	jywu@scut.edu.cn
工作单位	华南理工大学土木工程系	职　　称	讲师
联系地址	广东省广州市天河五山华南理工大学土木工程系（邮编：510640）		

工作、教育背景

- 2004.07～至今　　华南理工大学土木工程系　　讲师
- 2001.04～2004.06　　同济大学建筑工程系　　博士
- 1998.09～2001.03　　同济大学建筑工程系　　硕士
- 1994.09～1998.07　　华中理工大学（现华中科技大学）建筑工程系　　本科

学位论文

- 博士学位：基于损伤能释放率的混凝土弹塑性损伤本构模型及其结构非线性分析应用
  指导老师：李杰教授，同济大学，2004年06月
- 硕士学位：异形截面柱在低周反复荷载作用下的抗剪性能试验与理论研究
  指导老师：李杰教授，同济大学，2001年03月
- 学士学位：某中学教学楼建筑及结构设计
  指导老师：张仲先副教授、张耀庭副教授，华中理工大学，1998年07月

研究方向、兴趣

- 研究方向: 宏观和细观损伤力学、计算混凝土力学、混凝土本构建模和结构非线性分析等；

- 其它兴趣：固体力学、计算力学、有限元、结构抗震以及计算机辅助工程（CAE）软件应用等。

主讲课程

- 本科生：
  - 混凝土基本理论：2006.09～2007.01，32学时/80人；2005.09～2006.01，16学时/80人；
  - 混凝土结构设计：2005.03～2006.07，2006.03～2006.07：32学时/80人；
  - 混合结构课程设计：2005.06～2005.07，2006.06～2006.07，16人/次；
  - 毕业设计：2005.03～2006.07，2006.03～2006.07，7人/次；
  - 学生研究计划：2006.02～2007.02，3人/次。
- 研究生：
  - 高等混凝土理论（2005.03～2006.07，2006.03～2006.07：8学时/100人）；
  - 硕士论文指导（2人）。

语言能力

- 大学英语四、六级考试成绩优秀。
- 熟练掌握英文文章的阅读、翻译和写作技巧。

专业软件

- 精通大型通用非线性有限元分析软件ABAQUS和DIANA等，能进行深入的二次开发；
- 熟悉ADINA、MIDAS/Gen、MSC.MARC和MSC.PATRAN等其它CAE/FEA/CAD软件；
- 熟练操作MATLAB和Origin等科学计算绘图软件，能够自如地采用LaTeX进行科技论文写作；

主要获奖情况

- 工作阶段：获“华南理工大学2005年优秀班主任”。
- 博士阶段：获“巴特勒“奖学金。
- 硕士阶段：获“光华”奖学金。
- 本科阶段：获“华中理工大学校三好学生”，并多次荣获奖学金和校、院级奖励。

主要科研成果

- 上海市优秀博士论文（2006年）
- 广东省科技进步二等奖《地下室逆作法新技术研究》（2006年）：第9完成人
- 全国第九届混凝土结构基本理论及工程应用学术会议（2006年）：青年优秀论文二等奖
- 同济大学优秀博士论文（2005年）
- 发明专利《钢拱混凝土简支梁》（ZL 2004 1 0051328.2）：第2完成人（共2人）
- 上海市工程建设规范《钢筋混凝土异型柱结构技术规程》（DG/TJ08-009-2002, J10208-2002）：第7完成人。
- 上海市科技进步二等奖《上海市小高层墙柱组合结构体系研究》（022063）：第12完成人。
- 在攻读博士学位期间，还参加了国家杰出青年科学基金项目（59825105）、国家自然科学基金创新研究群体科学基金资助项目（50321803）以及国家建设部“十五”的科技攻关等项目的研究工作。

参加的国际会议

- International Symposium on Confined Concrete (ISCC2004), Changsha, China, June 2004.
- XXI International Conference of Theoretical and Applied Mechanics (ICTAM), Warsaw, Poland, August 2004.
- Congreso de M´éetodos Numéricos en Ingeniería 2005, Granada, España, July 2005.
- 8th Conference on Dynamical System Theory and Applications (DSTA2005), Łódź, Poland, December 2005.
- 10th Enhancement and Promotion of Computational Methods in Engineering and Science (EPMESCX), Sanya, China.
- Ninth International Symposium on Structural Engineering for Young Experts, Fuzhou & Xiamen, China.
- III European Conference on Computational Mechanics: Solids, Structures and Coupled Problems in Engineering (ECCM2006), Lisbon, Portugal.

科研论文

已发表或已接收论文（23篇）

国际外文期刊（3篇）

- Wu, J. Y. and Li, J., 2007. Unified plastic-damage model for concrete and its Applications to dynamic nonlinear Analysis of Structures. *Engineering Mechanics and Structures*, 25(5).

- Wu, J. Y., Li, J. and Faria, R., 2006. An energy release rate-based plastic-damage model for concrete. *International Journal of Solids and Structures*, 43(3-4): 583-612.

- Li, J. and Wu, J. Y., 2006. Energy-based CDM model for nonlinear analysis of confined concrete. *ACI SP-238*, 13: 209-222.

国际会议（7篇）

- Wu, J. Y. and Li, J., 2006. On a new framework for anisotropic damage model. In: C.A. Mota Soares et.al. (eds.), *Proc. of III European Conference on Computational Mechanics: Solids, Structures and Coupled Problems in Engineering*, Lisbon, Portugal.

- Wu, J. Y. and Li, J., 2006. A Unified plastic-damage model for concrete and its applications. In: *Proc. of 9th International Symposium on Structural Engineering for Young Experts*, Fuzhou & Xiamen, China: 313-319.

- Wu, J. Y. and Li, J., 2006. Stress-based effective space anisotropic damage model for concrete. In: M.W. Yuan et al. (Eds.), *Proc. of 10th Enhancement and Promotion of Computational Methods in Engineering and Science*, Sanya, China.

- Wu, J. Y., Li, J. and Faria, R., 2005. An energy based plastic-damage model for concrete. In: *Proc. Congreso de Métodos Numéricos en Ingeniería (CD-ROM)*, Granada, España.

- Wu, J. Y. and Li, J., 2005. CDM-base damping: incorporated into a plastic-damage Model for concrete and its applications to structures, In: J. Awrejcewicz, D., Sendkowski and J., Mrozowski (eds.), *Proc. of 8th Conference on Dynamical System Theory and Applications*, Łódź, Poland: 841-848.

- Li, J. and Wu, J. Y., 2004. Energy-based CDM model for nonlinear analysis of confined concrete structures. In: Y. Xiao, et al. (eds.), *Proc. of International Symposium on Confined Concrete*, Changsha, China.

- Wu, J. Y. and Li, J., 2004. A new energy-based elastoplastic damage model for concrete. In: Y. Xian et al. (Eds), *Proc. of XXI International Conference of Theoretical and Applied Mechanics*, Warsaw, Poland.

国内中文期刊（9篇）

- 吴建营, 2006. 张量和张量率的投影算子. 计算力学学报, 已接受.
- 吴建营, 李杰. 2006. 反映阻尼影响的混凝土弹塑性损伤本构模型. 工程力学, 23(11): 116-121.
- 吴建营, 李杰. 2006. 考虑应变率效应的混凝土弹塑性动力损伤本构模型. 同济大学学报, 34(11): 1427-1430.
- 吴建营, 李杰. 2005. 混凝土弹塑性损伤本构关系统一模型. 建筑科学与工程, 22(4).
- 李杰, 吴建营. 2005. 混凝土弹塑性损伤本构模型研究I：基本公式. 土木工程学报, 38(9): 14-20.
- 吴建营, 李杰. 2005. 混凝土弹塑性损伤本构模型研究II：数值计算和试验验证. 土木工程学报, 38 (9): 21-27.
- 吴建营, 李杰. 2004. 混凝土的连续损伤模型和弥散裂缝模型，同济大学学报，32（11），1428-1432.（EI收录: 05058821451）
- 吴建营, 李杰. 2002. 混凝土异型柱的抗剪全过程分析. 结构工程师, 61: 17-24.
- 李杰, 吴建营等. 2002. L形和Z形宽肢异形柱低周反复荷载试验研究. 建筑结构学报, 23(1): 9-15.（EI收录: 02176928429）

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