

岩土力学与堤坝工程教育部重点实验室 2014 年度考核报告

1. 概况

2014 年, 实验室完成本科土力学实验教学, 共 35 个班级 1234 人; 培养硕士 112 人、博士研究生 22 人, 、获得国家自然科学基金 11 项, 科研经费总共 2675 万元, SCI 论文 60 篇、EI 论文 26 篇, 专利 23 项, 省部级以上奖励 9 项, 参加国内外学术会议 45 人次, 邀请国内外专家学术报告 12 人次。

2. 实验室与人才队伍建设

新引进博士 2 人, 师资博士后 2 人, 出国进修 3 人

3. 教学

3.1 本科实验教学

完成本科土力学实验教学, 共 35 个班级 1234 人, 专业包括土木工程 (7 个班)、力学 (2 个班)、水工 (6 个班)、农水 (6 个班)、港航 (6 个班)、大禹班 (5 个班)、交通工程 (2 个班) 等。

实验内容包括颗粒分析试验、渗透试验、压缩试验、直剪试验、三轴试验等。

3.2 研究生培养

2014 年, 共招收博士研究生 22 名, 招收硕士研究生 112 名。获得江苏省优秀博士论文 1 篇, 江苏省优秀硕士论文 1 篇, 吕亚茹同学获得首届“工程硕士实习实践优秀成果获得者”荣誉称号, 张宁同学获 2014 年度宝钢教育奖。

4. 科研成果

4.1 论文 (SCI)、论著

[1] Ni, Haijiang; Hong, Haichun. The Yutian earthquake of 12 February 2014. GEOMATICS NATURAL HAZARDS & RISK, 2014, 5(3): 185-189

[2] Xiao, Yang; Liu, Hanlong; Chen, Yumin; Jiang, Jingshan. Bounding Surface Plasticity Model Incorporating the State Pressure Index for Rockfill Materials. JOURNAL OF ENGINEERING MECHANICS, 2014, 140(11).

[3] Xiao, Yang; Liu, Hanlong; Chen, Yumin; Jiang, Jingshan; Zhang, Wengang. Testing and modeling of the state-dependent behaviors of rockfill material. COMPUTERS AND GEOTECHNICS, 2014, 61: 153-165

[4] Xiao, Yang; Liao, Jun. Discussion of "Role of Particle Angularity on the Mechanical Behavior of Granular Mixtures" by H. Shin and J. C. Santamarina. JOURNAL OF GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERING, 2014, 140(6)

[5] Xiao, Yang; Liao, Jun; Jiang, Jing Shan. Discussion of "Elastoplastic Deformation Characteristics of Gravelly Soils" by MengChia Weng, Bin-Lin Chu, and Yu-Ling Ho. JOURNAL OF GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERING, 2014, 140(5)

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- [8] Xiao, Yang. Discussion of "Constitutive Modeling of Loose Sands under Various Stress Paths" by Cheng Chen and Jiasheng Zhang. INTERNATIONAL JOURNAL OF GEOMECHANICS, 2014, 14 (1):158-159
- [9] Xiao, Yang. Discussion of "Database of Friction Angles of Sand and Consolidation Characteristics of Sand, Silt, and Clay" by Knut H. Andersen and Knut Schjetne. JOURNAL OF GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERING, 2014, 140 (6)
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- [11] Xiao, Yang; Liu, Hanlong; Chen, Yumin; Jiang, Jingshan. Bounding Surface Model for Rockfill Materials Dependent on Density and Pressure under Triaxial Stress Conditions. JOURNAL OF ENGINEERING MECHANICS, 2014, 140 (4)
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- [14] Gao, Yufeng; Zhang, Fei; Lei, G. H.; Li, Dayong; Wu, Yongxin; Zhang, Ning. Stability Charts for 3D Failures of Homogeneous Slopes. Stability Charts for 3D Failures of Homogeneous Slopes, 2014, 139 (9): 1528-1538
- [15] Pham-Ngoc Thach; Liu, Han-Long; Kong, Gang-Qiang. Vibration analysis of pile-supported embankments under high-speed train passage. SOIL DYNAMICS AND EARTHQUAKE ENGINEERING, 2014, 55: 92-95
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- [24] Chen, Yong-Hui; Chen, Long; Wang, Xin-Quan; Chen, Geng. Critical Buckling Load Calculation of Piles Based on Cusp Catastrophe Theory. MARINE GEORESOURCES & GEOTECHNOLOGY, 2014, 33(3): 222-228
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- [28] Fu, Qiang; Zheng, Changjie. Three-Dimensional Dynamic Analyses of Track-Embankment-Ground System Subjected to High Speed Train Loads. SCIENTIFIC WORLD JOURNAL, 2014
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4.2 科研项目（纵向）

- [1] 国家自然科学基金面上项目：超固结或大埋深地基粗粒土 K₀ 演化规律与变形特性试验研究，批准号：51479052，起止时间：2015.1.1-2018.12.31，负责人：朱俊高

- [2] 国家自然科学基金面上项目：先期振动条件下堆石料动变形特性与破坏机理研究，批准号：51479059，起止时间：2015.1.1-2018.12.31，负责人：杨贵
- [3] 国家自然科学基金面上项目：动力荷载下桩-网复合地基荷载传递与轨道-路基-垫层-地基共同作用机理研究，批准号：51478166，起止时间：2015.1.1-2018.12.31，负责人：庄妍
- [4] 国家自然科学基金面上项目：各向异性岩石流变损伤力学特性实验与本构模型研究，批准号：51479049，起止时间：2015.1.1-2018.12.31，负责人：徐卫亚
- [5] 国家自然科学基金面上项目：高速列车荷载引发主应力轴旋转路径下软土动力特性试验与理论建模研究，批准号：51479060，起止时间：2015.1.1-2018.12.31，负责人：沈扬
- [5] 国家自然科学基金面上项目：振动沉桩过程及化学电渗法-现浇 X 形桩加固软基透明土模型试验研究，批准号：51478165，起止时间：2015.1.1-2018.12.31，负责人：孔纲强
- [6] 国家自然科学基金面上项目：河谷场地地震波传播理论及散射规律研究，批准号：51479050，起止时间：2015.1.1-2018.12.31，负责人：高玉峰
- [7] 国家自然科学基金面上项目：侵蚀环境下预应力 GFRP 锚杆结构的应力松弛模型，批准号：20145036711，起止时间：2015.1.1-2018.12.31，负责人：李国维
- [8] 国家自然科学基金青年项目：大直径泥水盾构砂地层开挖面被动破坏模型试验及机理分析，批准号：51408191，起止时间：2015.1.1-2017.12.31，负责人：闵凡路
- [9] 国家自然科学基金青年项目：负压条件下土体渗流固结特性研究，批准号：51408187，起止时间：2015.1.1-2017.12.31，负责人：李平
- [10] 国家自然科学基金：冻融环境与循环荷载耦合下砂岩多尺度劣化破坏演变机理研究，批准号：20145048111，起止时间：2015.1.1-2017.12.31，负责人：朱珍德
- [11] 江苏省自然科学基金：隧道“裂隙拱体”渐进破坏机理研究，批准号：20145051711，起止时间：2015.1.1-2017.12.31，负责人：沈才华

4.3 获奖

- [1] 大面积超软地基复式负压快速固结技术开发与应用，教育部科技进步奖一等奖，刘汉龙等，2014 年
- [2] 强震作用下高土石坝抗震分析理论与应用，中国岩石力学与工程学会科技进步奖一等奖，刘汉龙等，2014 年
- [3] 一种桩土互动浆固散体材料桩复合地基施工工法，中国专利优秀奖，刘汉龙，2014 年
- [4] 水工裂隙岩体稳定性分析方法及应用，第五届中国岩石力学与工程学会科学技术奖(自然科学奖)一等奖，王媛等，2014 年
- [5] 现代卫生填埋工程技术及应用，华夏建设科学技术奖二等奖，施建勇等，2014 年
- [6] 多尺度岩石力学与重大能源工程团队，第五届中国侨界创新团队奖，邵建富，2014 年
- [7] 全国高校青年教师教学竞赛一等奖，沈扬，2014 年
- [8] 江苏省本科高校青年教师教学竞赛特等奖，沈扬，2014 年
- [9] 江苏省优秀研究生课程，高等土力学，朱俊高等，2014 年

4.4 发明专利、软件著作权

- [1] 超软土异步真空吸水预压法，专利号：ZL201310096244.X，发明人：陈庚、陈永辉、陈龙、王颖、李行
- [2] 一种多元堤基管道式管涌型渗透变形的模型及试验方法，专利号：ZL201310138570.2，发明人：陈亮、赵敬川、夏兵兵、高为壮、雷文、丁小闯、康方博

- [3] 基于地下大通水量排水系统的排水通道防淤防堵方法, 专利号: ZL201210000630. X, 发明人: 陈永辉、刘汉龙、陈庚、王新泉、张俊楠
- [4] 高等级公路深厚软土地基工后沉降控制板承式路堤技术, 专利号: ZL201210007123. 9, 发明人: 丁选明、刘汉龙、庄妍、陈育民、高德清
- [5] 一种大直径管桩低应变质量检测方法, 专利号: ZL201210345037. 9, 发明人: 丁选明、刘汉龙、谭慧明、黄旭
- [6] 一种沉管灌注桩的活动进料斗及施工方法, 专利号: ZL201110302473. 3, 发明人: 丁选明、陈育民、刘汉龙、孔纲强、庄妍
- [7] 一种空心劲芯浆固散体材料桩及其施工方法, 专利号: ZL201110341205. 2, 发明人: 丁选明、刘汉龙、陈育民、孔纲强
- [8] 一种加固吹填淤泥土的真空电渗排水方法及装置, 专利号: ZL201210549652. 1, 发明人: 刘志浩、高明军、曾国海
- [9] 一种漂浮式表面水排水装置及其方法, 专利号: ZL201210199345. 5, 发明人: 高玉峰、张莹、周源、陆志浩
- [10] 一种土石坝拱型组合面板及其施工方法, 专利号: ZL201210105726. 2, 发明人: 肖扬、刘汉龙、丁选明、吴玉标
- [11] 一种真空-电渗-堆载联合加固软基的系统和方法, 专利号: ZL201110441835. 7, 发明人: 崔允亮、刘汉龙、曾国海、高明军、沈扬、刘志浩
- [12] 一种沉管灌注桩多料斗桩模及施工方法, 专利号: ZL201110260194. 5, 发明人: 刘汉龙、丁选明、陈育民、李平、于陶
- [13] 路堤下软土地基变形控制的短桩-板壳结构技术, 专利号: ZL201210105709. 9, 发明人: 刘汉龙、庄妍、丁选明、沈扬、李平
- [14] 一种 PCC 能量桩及制作方法, 专利号: ZL201210298385. 5, 发明人: 刘汉龙、丁选明、孔纲强、吴宏伟、陈育民
- [15] 一种土石坝注浆加固抗震方法, 专利号: ZL201210006730. 3, 发明人: 刘汉龙、杨贵、王复明、陈育民、刘彦辰
- [16] 切缝夹砂药包及其爆破安装装置和生产工艺, 专利号: ZL201010151082. 1, 发明人: 阮怀宁、谢华刚、赵正信、吴玲丽、温森、周琦、张静、王福章、余华中、刘金辉、丁道红、刘讯、蔡军、李鑫
- [17] 一种提高膨胀土边坡稳定性和控制膨胀土结构破坏的方法, 专利号: ZL201310040756. 4, 发明人: 王保田、张文慧、俞海洲、杜妍平、赵辰洋
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