

SUNIL K. KONDAPALLI

Project Manager

PROFESSIONAL HISTORY:

- 1988 - Present **ZETA-TECH Associates, Inc., Cherry Hill, NJ**
Project Manager
Responsibilities include: Finite Element analysis, Computer modeling of railroad joint bars, and fastening systems; Simulation modeling for economic analysis of train operations; Development of interactive software for train scheduling; Analysis of inoperative traction motors on wheel safety of mass transit cars; Development of train simulation model to represent operating, accelerating, and braking behavior of transit equipment.
- 1986 - 1988 **Villanova University, Villanova, PA**
Teaching Assistant, Dept. of Mechanical Engineering
Conducted stress analysis laboratories for undergraduates. Assisted students and faculty in the use of various engineering software packages and programming languages on VAX 11/780 and IBM PC Local Area Network.
- 1985 - 1986 **Nagarjuna Signode Limited, India** (A joint venture with Illinois Tool Works, Illinois)
Assistant Engineer (Production)
Trained newly recruited personnel on Multi-Axis CNC machines. Responsibilities included the preventive maintenance, planning and implementation of weekly production schedules and maintaining product quality level.

EDUCATION:

- 1988 MS Mechanical Engineering
Villanova University, Villanova, PA
- 1985 BS Mechanical Engineering
Osmania University, India

COMPUTER SKILLS:

Systems: Windows 98/NT/XP

Languages: C, FORTRAN, PASCAL

Software: Visual Basic, ANSYS, ALGOR, IDEAS, AutoCAD

PROFESSIONAL AFFILIATIONS:

American Railway Engineering and Maintenance-of-Way Association
American Society of Mechanical Engineers

HONORS & AWARDS:

Graduate Assistantship by the Department of Mechanical Engineers,
Villanova University

National Merit Scholarship by Government of India

PUBLISHED PAPER:

1) "Ballast Shoulder Cleaning: Issues and Economics", with Allan M. Zarembski, Railway Track & Structures, July 2000.

2) "The Cost of Safety: A Cost/Benefit Analysis of Railroad Hot Bearing Detection Systems", with Randolph R. Resor, International Mechanical Engineering Congress and Exposition (ASME), 1994

3) "Quantification of Expected Benefits: Meet/Pass Planning and Energy Management Subsystems of the Advanced Railroad Electronics System (ARES)", with R. R. Resor, M. E. Smith and P. K. Patel, Journal of the Transportation Research Forum, Vol. XXX No. 2, 1990.

RELATED PROJECTS:

1) Determined the economic benefits of the ballast shoulder cleaning in terms of ROI (return on investment), where a positive ROI indicates that the investment (shoulder cleaning) has a positive payback, and a negative ROI indicates that it has a negative payback.

2) Performed various rail transit vehicle simulations to analyze the vehicle-curving behavior as well as to determine dynamic wheel/rail forces on different transit track structures and in a turnout.

- 3) Developed an economic analysis computer model to determine and compare the total annual costs of train operations and track maintenance using alternate lubricant types as compared to a defined base case for both freight railroad and transit operations.
- 4) Performed quasi-static finite element analyses on the bonded insulated joint bar and the standard joint bar to investigate the failure mechanism that occurred under the heavy load rolling load tests.
- 5) Developed a computer model of the freight car to determine the wheel/rail dynamic forces when the car experiences lateral load shifts resulting in the lateral displacement of center of gravity of the car.
- 6) Developed a user-friendly Windows application designed to determine wood crosstie life, and forecast the number of wood crossties required for replacement based on various tracks and operating characteristics.
- 7) Developed an economic analysis computer model to compare the economics of the wood crosstie track structure to the alternate (concrete, composite tie) track system taking into account the different track and maintenance characteristics of the two systems. This analysis was developed for both freight as well as for transit operation.

RELATED SOFTWARE:

- 1) **NUCARS:** New and Untried Car Analytic Regime Simulation (NUCARS) is a multi-body system for the analysis of rail vehicle transient and steady state response developed by Association of American Railroads (AAR) for the simulation of the dynamic behavior of railroad/transit vehicles.
- 2) **AGEM:** Automatic Generation of Equations-of-Motion (AGEM) is a multibody dynamics software designed to analyze the stability, ride quality, and curving performance of rail vehicles of any design.
- 3) **TEM:** Train Energy Model (TEM) is a comprehensive train operations model developed by Association of American Railroads (AAR) to determine fuel, running time, and speed for a defined consist on a defined route.