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ข้อความแห่งการริเริ่ม

- วิธีการหาเสถียรภาพแบบใหม่ที่อาศัยทฤษฎี Lyapunov ได้ถูกนำเสนอเพื่อทำนายความเป็นไป ได้ของการเกิดการสั่นสะเทือนแบบไม่เป็นเชิงเส้นที่เกี่ยวข้องกับปฏิกิริยาระหว่างโรเตอร์และ สเตเตอร์ เงื่อนไขเสถียรภาพของวงโคจรที่สม่ำเสมอสำหรับการหมุนวนแบบตามถูกสร้างขึ้น วิธีการควบคุมใดๆที่ทำให้เงื่อนไขนี้เป็นจริงจะทำให้ได้ระบบควบคุมที่มีเสถียรภาพ
- กลยุทธ์ในการควบคุมแบบใหม่โดยอาศัยแบบจำลองของระบบที่เรียกว่าการควบคุมแรง ป้อนกลับแบบพลศาสตร์ ซึ่งอยู่บนพื้นฐานของทฤษฎีที่ถูกพัฒนาขึ้นได้ถูกนำเสนอ ตัวควบคุม นี้ใช้การวัดแรงปฏิกิริยาระหว่างโรเตอร์และสเตเตอร์ เทคนิคนี้สามารถนำไปใช้กับการ สั่นสะเทือนที่มีหลายโหมดและในกรณีที่แอกชูเอเตอร์กับเซนเซอร์ไม่อยู่ในตำแหน่งเดียวกัน

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STATEMENT OF ORIGINALITY

- A novel Lyapunov-based approach to predict the possibility of nonlinear vibration response involving rotor-stator interaction was proposed. Here, the stability condition of a steady orbit for a forward whirl was established. Any control approach that ensures this condition is satisfied will result in a stable control system.
- 2) A novel model based control strategy called "dynamic force feedback control" based on the theories developed was proposed. This controller utilizes measurement of rotor-stator interaction forces. The technique can be applied with multi-mode vibration and in case where the actuator and sensor are non-collocated.



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