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## **ROLLER GEARING AND POWER TRANSMISSION TECHNOLOGY FOR AUTOMOTIVE APPLICATIONS**

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**ABSTRACT** – In this paper, we introduce sincroll’s new gearing technology and outline a few of its many potential automotive applications.

The technology is based on the use of rollers intermediating between the driving and the driven wheels. The wheels have no “teeth” but grooves on their surfaces along which the rollers roll as they connect the two wheels and transmit torque between them. The basic principal condition for the technology is that the rollers in this process by design carry out pure rolling motion without sliding.

The sincroll technology represents a fundamentally new and complete framework, and a whole new paradigm in gearing, that offers solutions to any gearing problem universally.

It exhibits close to 100% efficiency independent of the gear’s geometry and ratio. It features exceptionally high contact factor typically 10-20, no back-lash, compact size and special shape. It is highly flexible, very rich and optimisable in its construct. It also shows more subtle but occasionally very important features such as arbitrary direction of rotation, high precision, lower vibrations, better lubrication etc.

The technology is applicable in the full range of machinery industries with considerable expected advantages. Potential automotive applications include, in particular, transmissions, differentials and steering gears as well as other auto components like window lifters and engine starters. In this paper, we outline possible constructs for some of these applications and evaluate briefly their theoretical features and expected performance.