



Finite Element Calculation of bio polymer matrix with hemp fibre reinforced.

Research prototype for a frame of a battery electric moped.

## Target

Make durable ultra-light vehicles possible using frames and other parts made from biomaterials.

The vehicle frame shall contain batteries etc. , so no bamboo tubes shall be used.

The range of vehicles shall include L6e.

## Work packages

- Desk Research,
  - Requirements
  - Material properties
  - Solution matrix
- Development of FE models
- Test model with slabs/tubes
- Build research prototype frame.
- IPR and Exploitation Plan
- Dissemination

## Literature

[https://www.researchgate.net/publication/355353701\\_Finite\\_Element\\_Analysis\\_of\\_Hemp\\_Fiber\\_Reinforced\\_Cellulose\\_Filled\\_Epoxy\\_Hybrid\\_Composite](https://www.researchgate.net/publication/355353701_Finite_Element_Analysis_of_Hemp_Fiber_Reinforced_Cellulose_Filled_Epoxy_Hybrid_Composite)



Sources <https://wonderfulengineering.com/bamboo-e-bike-looks-like-something-flintstones/>

<https://ecofriend.com/ecofriend-ten-awesome-human-powered-vehicles-to-be-green-roadsters-of-tomorrow.html>

<https://www.tuvie.com/eel-three-wheeler-lightweight-vehicle-with-bio-ethanol-engine/>

## References

G. Cebrat effizientest: PiA Paradigm Change for Ultra-Light Vehicles FFG project