



Universität Hamburg

DER FORSCHUNG | DER LEHRE | DER BILDUNG

CHAMPP

CENTER IN HAMBURG FOR  
ASTRO-, MATHEMATICAL AND  
PARTICLE PHYSICS

LECTURE COURSE IN THE QUANTUM UNIVERSE RESEARCH SCHOOL

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Winter Term 2022/2023

# Differential Geometry 2

Vicente Cortés

## Course Description:

This is an MSc lecture course about global Riemannian geometry. We will see how the geometry and topology of a Riemannian manifold is influenced by its curvature. Fundamental results within this circle of ideas include the Gauß-Bonnet theorem, the Cartan-Hadamard theorem, the Bonnet-Myers theorem and the Riemannian holonomy theory among other instances.

## Prerequisites:

I will assume basic knowledge corresponding to the BSc course “Differentialgeometrie”, including smooth manifolds, tensor fields, connections in vector bundles, parallel transport, pseudo-Riemannian manifolds and their submanifolds, geodesics etc.

## Date and Place:

Mon, 10:15 – 11:45, SR 435, Geomatikum  
Wed, 16:15– 17:45, Hörsaal H2, Geomatikum

## Problem Classes:

Fri, 16:15 – 17:45, SR 1240, Geomatikum

## Starting on:

17 October 2022

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