

# Dark matter: Geometric Gravitation Theorem

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## SUMMARY

### Geometric Gravitation Theorem:

**The centre of gravitational force of masses surrounding symmetrically a geometric centre Z affects a nearby object at a position A as though all masses were concentrated at a point outside of the centre Z.**

There is a circle of radius  $R$  around a centre  $Z$ .

The downside point of this circle may be called  $A$ .

**Using Newton's gravitation law** we are searching for the single effective point that affects object  $A$  gravitationally as though all of the objects of the volume of radius  $R$  were concentrated at this point.

Mass divided by square of distance serves as a basis for all calculations.

We define a geometric gravitation unit:

1 GGE = the gravitational force of one mass unit at a distance of  $R$

First we regard any two gravitational points at the straight line  $AZ$  that are symmetrical to  $Z$  and we establish that the distance of the **single effective point  $r(W)$**  of these two masses on behalf of  $A$  is

less than  $R$ .

**$r(W) < R$**

Second we calculate the single effective point of 8 cardinal points of any circle ( 8 intersection points of the 2 orthogonals and the 2 diagonals starting at  $Z$ ) and get the result: The distance of the single effective point from  $A$  is less than  $R$ .

**$r(W) < R$**

For any complete **circle** of gravitational mass you will get the same result:

**$r(W) < R$**

Therefore any number of circles whatever will result in

**$r(W) < R$**

The same you will get for a compact **disc** of matter

**$r(W) < R$**

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And also on behalf of a single **object orbiting Z** the single effective point of one complete revolution is

$$\mathbf{r(W) < R}$$

Turning a disc of compact matter and a disc of orbiting mass objects respectively around the straight line AZ you will get a **globe** of the feature

$$\mathbf{r(W) < R}$$

In contrast Newton's Shell Theorem postulates  $r(W) = R$ .

What's the reason for getting different results using Newton's gravitation law on the one hand and Newton's Shell Theorem on the other hand?

The crucial step is to follow the instructions of bracket calculation: You **first** have to consider the gravitational force of any mass at its position and second you may **sum up the gravitational forces** of different positions. By using the Geometric Gravitation Unit you may observe this bracket rule instruction.

Using Newton's gravitation law correctly, it is shown that the galactical rotation curve results from local effective gravitation without need for any "dark matter" or any other unknown (Westenberger 2011).

Using Newton's Shell Theorem you won't get the correct result. Obviously all attempts to prove it do ignore this rule of bracket calculation. (First summing up all masses into the geometric centre of a certain distance to A and second calculating total mass divided by this distance results in "missing mass" and in "dark matter", that's a cardinal error of current cosmology.)

Therefore the original version of Newton's Shell Theorem should not any longer be used.

### REFERENCES

**[1] Westenberger W., 2011** (Books on demand, Norderstedt, ISBN 978-3-8423-4883-7):

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Wer rettet die Dunkle Materie?

**[2] Westenberger W., 2012:**

Geometrisches Gravitationstheorem

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