Package ‘nakagami’

December 2, 2019

Type Package

Title Functions for the Nakagami Distribution

Version 1.0.0


License MIT + file LICENSE

Encoding UTF-8

LazyData true

Imports assertthat

Suggests testthat, knitr, covr, rmarkdown

RoxygenNote 6.1.1

URL https://github.com/JonasMoss/nakagami

BugReports https://github.com/JonasMoss/nakagami/issues

NeedsCompilation no

Author Jonas Moss [aut, cre] (<https://orcid.org/0000-0002-6876-6964>)

Maintainer Jonas Moss <jonas.gjertsen@gmail.com>

Repository CRAN

Date/Publication 2019-12-02 15:40:09 UTC

R topics documented:

Nakagami .......................................................... 2
suppress_olw .................................................. 3

Index 4
Description

Density, distribution function, quantile function and random generation for the Nakagami distribution with parameters shape and scale.

Usage

dnaka(x, shape, scale, log = FALSE)
pnaka(q, shape, scale, lower.tail = TRUE, log.p = FALSE)
qnaka(p, shape, scale, lower.tail = TRUE, log.p = FALSE)
rnaka(n, shape, scale)

Arguments

x, q vector of quantiles.
shape vector of shape parameters greater than 1/2.
scale vector of positive scale parameters.
log, log.p logical; if TRUE, probabilities p are given as log(p).
lower.tail logical; if TRUE (default), probabilities are P[X ≤ x] otherwise, P[X > x].
p vector of probabilities.
n number of observations. If length(n) > 1, the length is taken to be the number required.

Details

The Nakagami distribution with shape \(m\) and scale \(\Omega\) has density

\[
2m^m/\Gamma(m)\Omega^m x^{(2m-1)}e^{(-m/\Omega x^2)}
\]

for \(x ≥ 0, m ≥ 1/2\) and \(\Omega > 0\).

If \(Y\) is Gamma distributed with \(shape = m\) and \(rate = m/\Omega\) then \(X = \sqrt{Y}\) is Nakagami distributed with \(shape = m\) and \(scale = \Omega\).

Value

dnaka gives the density, pnaka gives the distribution function, qnaka gives the quantile function and rnaka generates random deviates.

The length of the result is determined by \(n\) for rnaka, and is the maximum of the lengths of the numerical arguments for the other functions.

The numerical arguments other than \(n\) are recycled to the length of the result.


References

See Also
The Gamma distribution is closed related to the Nakgami distribution.

| suppress_olw | Suppress object length incompatibility warnings |

Description
Suppress object length incompatibility warnings

Usage
suppress_olw(expr)

Arguments
expr expression to be evaluated.
Index

dnaka (Nakagami), 2
Gamma, 2, 3
Nakagami, 2
pnaka (Nakagami), 2
qnaka (Nakagami), 2
rnaka (Nakagami), 2
suppress_olw, 3