Package 'plugdensity'

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Title Plug-in Kernel Density Estimation

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Description Kernel density estimation with global bandwidth selection
via ``plug-in''.

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R topics documented:

`plugin.density` *Kernel Density Estimation by Plug-In Bandwidth Selection*

Description

The function provides kernel density estimation with iterative plug-in bandwidth selection.

Usage

```
plugin.density(x, nout = 201, xout = NULL, na.rm = FALSE)
```

Arguments

x	vector of numbser whose density is to be estimated.
nout	integer specifying the number of equispaced xout values to use *only when* xout = NULL (as by default).
xout	numeric vector of abscissa values at which the density is to be evaluated. By default, an equispaced sequence of values covering (slightly more than) the range of x.
na.rm	logical; if TRUE, missing values are removed from x. If FALSE any missing values cause an error.

Value

an object of class "densityEHpi" inheriting also from class "density". It is a list with components

x	the n coordinates of the points where the density is estimated.
y	the estimated density values.
bw	the bandwidth used.
n	the sample size after elimination of missing values.
call	the call which produced the result.
data.name	the deparsed name of the x argument.

Author(s)

Algorithm and C code: Eva Herrmann <eherrmann@mathematik.tu-darmstadt.de>; R interface: Martin Maechler <maechler@R-project.org>.

References

J. Engel, Eva Herrmann and Theo Gasser (1994). An iterative bandwidth selector for kernel estimation of densities and their derivatives. *Journal of Nonparametric Statistics* **4**, 21–34.

See Also

density.

Examples

```
data(co2)
plot(dco2 <- density(co2), ylim = c(0, 0.03))
(pdco2 <- plugin.density(co2, xout = dco2$x))
lines(pdco2, col = "red")

plot(pdco2)# calls 'plot.density' method

str(pdco2 <- plugin.density(co2))
xo <- pdco2 $x
str(d.co2 <- density(co2, n = length(xo), from=xo[1],to=max(xo),
                     width= 4 * pdco2$bw))
```

```
nms <- c("x","y", "bw", "n")
all.equal(d.co2[nms], pdco2[nms])
## are close: "Component 2 (= 'y'): Mean relative difference: 0.0009..."
```

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